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THE CRIPPLED HAND

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Deformities of the hand constitute one of the very serious catastrophies that befall mankind. Next to permanent brain injury and blindness, serious loss of the use of the hands does more to incapacitate one in our social life than probably any other single factor. We are going to sketch briefly in this talk, some of the more common conditions, which can be easily remedied. For purposes of presentation, we will divide them into several classes.

CONGENITAL DEFORMITIES

(a) The Supernumerary Finger, that is, the extra little finger and the extra thumb. We operate these cases as soon after the tenth day as possible so that the baby may develop that finger which is left. It is very difficult to state which of the fingers to remove, or which thumb, but it is usually best to remove the external finger or thumb, because they are usually not as well developed. There are usually present two facets on the metacarpal bone, which should be left alone. The extra tendon, which is always present, should be sutured into the remaining tendon so we may have complete development of the muscle, rather than atrophy of half of the muscle. These operations require exceeding care in detail, but if well done, bring very brilliant results.

(b) The Web Fingers (Syndactylsis). This is one of the oldest operations in surgery. The old procedure was to split the skin from one finger on the palmar surface, the other finger on the dorsal surface, and then wind the resulting flap around its finger. This bettered the condition but never cured it. Likewise, in most of these cases the terminal phalanx is as one, being firmly united with its mate at its side. Normally, as the base of the web is square, there was never skin enough to make up for this space, resulting in a very incomplete condition. By far the most efficient way to treat this condition is to cut the web right down through the middle just as far as one can, until the ligament is reached; this leaves a good thick skin on the palmar surface as well as the dorsal surface and leaves the denuded area between the fingers. We then place a full thickness graft on the denuded area. Later, by special operation, the base is squared, which will insure a full deep web, allowing for complete abduction.

DUPUYTREN'S CONTRACTURES

The So-Called Dupuytrens Contracture: The cause of this contracture is unknown. We know that it is mostly in older men and in persons who have a tendency to lay down fibrous tissue. It is one of the most disabling conditions one can imagine, because it usually starts in the index or the little finger and is followed by a gradual and increasing contracture until the fingers are forced down on the palm. There have been various methods devised to cure this condition, but the original discussion by Dupuytren in which he states all the palmar fascia must be removed and the whole skin must be thoroughly mobilized, still holds true. The best incision is one made along the edge of the palm on a line between the little and third finger, then carried across towards the index finger at the uppermost crease. This whole flap is thrown back and the palmar fascia completely removed. Because frequently many of these cases have been operated previously, or because the skin

has become thoroughly hardened, it may be necessary to remove some of the skin. This should be replaced by a very loosely fitting full-thickness graft. Following this extensive removal, x-ray will help to prevent the reformation of fibrous bands from tissue which may not have been completely removed. We have operated some fifteen of these cases, several of which had been previously operated, but not completely. We have obtained unusual results on those cases where we have been very radical, but when we have tried to be conservative in the removal of the fascia, we have always had recurrence.

TRAUMATIC DEFORMITIES OF THE HAND

Infection following deep palmar abscess. There is probably no phase of reconstructive surgery that is so difficult and so baffling as reconstruction of tendons which have been destroyed by infection. This is because, not only is the tendon destroyed, but the tendon sheath, the nerves, and all the fatty tissue is gone, and whatever little string of tendon may be left, is imbedded in thick hard fibrous scar. We never attempt surgery on these hands until we are certain, beyond all measure of a doubt, that every bit of infection has subsided. Before we do an open operation, we mobilize them under gas and thoroughly massage them; if they then do not break down or flare up, we allow two weeks to pass, when it is usually safe to attempt it. The procedure in these cases always depends on the amount of destruction and the extent of the involvement. One incision is usually enough, because at best the blood supply is extremely poor. We get beyond the area of destruction and follow every tendon down into the mass on both sides, and then try carefully to separate whatever is left. We make no attempt in these extensive cases to separate the superficial from the deep tendons if we get some reasonable amount of flexion.

When we have separated or built up our tendons, it is best to take some fat from the arm or from the abdomen and surround them. One must be very careful, as this fat has a tendency to break down. The wounds are drained and then the hand is dressed with sponge pressure, to leave no space for a collection of serum. The hand is left at rest for about one week, and then passive motion and massage are instituted. We are never very enthusiastic about these conditions and frankly tell patients they should be thankful for any little motion they get. If we get sufficient motion to allow the patient to dress himself, we have done much, because, with restoration of the prehensile factor of the hand, we have given him that one outstanding attribute which differentiates the human hand.

Burns in Children. Another serious trauma causing crippled hands, results in contractures following deep burns. Deep burns destroying the palm of the hand in adults are comparatively rare. These are much more common in children. We have had many cases where children have had the palms of one or both hands destroyed by gripping hot objects, with a resulting destruction of the palmar skin and some of the palmar fascia. This is the most frequent type of burned hand we encounter among children. These cases can be brilliantly restored by a simple yet technically difficult operation. All the scar tissue is carefully resected, a careful pattern is made and a full thickness graft is cut from the abdomen and carefully sutured in place. The ends of the fingers are sewn palm upward to hardware cloth and even pressure is instituted. In this manner the palm is restored with a thick pliable skin. We have had some brilliant results with cases of this type in children from six months to eight years of age. To use a pocket flap is a very difficult procedure in children, because of the difficulty in dressing, the difficulty of holding the hand in situ and trouble with infection. They simply will not keep the hand at rest, and then, too, whereas the first procedure can be accomplished with ten days' hospitalization for out-of-town patients, and one day hospitalization for in-town patients, with not to exceed six dressings, the second procedure is one of three or more operations with weeks of hospitalization and untold numbers of dressings, with the result not nearly so satisfactory. When one knows the technical difficulty of the first procedure, and understands it, the end result is practically assured.

Burns in Adults. In adults the procedure with burns on the palms of the hand is much the same as in children. By using the heavy skin of the back, we can give one practically as tough a palm as before the injury. In removing the skin, one must be careful not to take away the skin over the spinous process,

because the resulting scar is often painful. One should go one-half to one inch to the side.

Burns on the Back of the Hand. We see a great many hands in which the backs have been burned and a lot of skin has been destroyed, healing having taken place by granulation tissue. This results in a piling up of a lot of fibrous tissue and scar, causing fixation of the hand in extension. These cases can be very successfully treated in a comparatively simple manner, by shaving off the fibrous tissue with a straight razor. The hand is then completely flexed and the area is covered with a thick split graft cut in one piece. The only difficult procedure is cutting the split graft in one piece. This can be accomplished with large thin knife and suction apparatus. The graft is then covered with xeroform gauze and even sponge pressure applied. In a couple of weeks the dressing is removed, and in less than three weeks a half-erythema dose of x-ray is given and this is repeated four or five times. In this connection I will say that I refer these cases to the very best x-ray men available in the community in which the patient lives, and write him most careful instructions never to exceed a half-erythema dose and to use great caution. On one case I lost my graft, due to the careless x-ray. X-ray prevents the reformation of fibrous tissue from the tiny islands which are left, and the consequent recurrence of some of the contractures.

When the burn has been extensive enough to destroy the fatty tissue on the back of the hand and some of the tendon sheath, an entirely different procedure must be used. In these cases we completely resect the scar and all thickened tissue. The thin skin on the upper inner portion of the thigh is used for the graft. An incision is made across the top, and the skin is dissected free, leaving just a little bit of the fatty layer attached. Holes are punched in the lower end of the flap to accommodate the fingers. A split graft is placed underneath the flap on the denuded thigh and the hand is sewn in situ. By placing in the split graft, we cover the denuded area, preventing infection and save two operations. The hand is allowed to remain in situ for three weeks and the flap is gradually cut away under local anesthesia. When both hands are involved, this of course takes five to six weeks or more, and is costly and time consuming, but one cannot otherwise get a movable flexible skin on the back of the hand when all of the fine fatty tissue has been destroyed by the burn. This gives the nicest end result of any of the procedures, as it covers the hand with a skin that can be exposed to the weather, can be barked and skinned without everlastingly breaking down, and neither the cold nor the sun disturbs it.

THE CRIPPLED HAND RESULTING FROM VIOLENCE

Cut Nerves and Tendons. These result from such as automobile accidents, glass injuries, and so forth. The most common are those resulting from being thrown into a windshield and severing the nerves and tendons in the wrist. It has been my lot to have seen a great many of these cases, both early and late. I am leaving this group till last because it is the type of case the average man sees most frequently. These are often the result of auto or bus accidents in which someone falls into a glass, throwing the hand out in extension and the glass cuts the nerves and tendons at the wrist. The hands being held in tension, the cut often goes from radius to ulna, involving everything.

Do not attempt to sew this up in your office alone. Get someone, office girl, relative, or nearest doctor, to administer an anesthetic. because these cuts cannot be correctly sewn up without complete relaxation.

If you do not know your anatomy, get down your book, put it on the table next to you, open at the page showing the tendons and nerves of the hand, and refer to it as you sew up the hand. I have found in most instances that the difficult thing for the men to differentiate is the nerve from the tendon. There are only two nerves of any consequence: the ulnar and the median. The median nerve is directly under the tendon which sticks out when one fully extends the fingers, and is known as palmaris longus. This nerve is usually cut and, inasmuch as it is the nerve of sensation for most of the hand, it is very important. The upper end will not contract, but the lower end springs into the palm. The common instinct is to sew the median nerve into the palmar fascia, mistaking it for the tendon. If you are not sure, make a longitudinal incision into the nerve. You will find it pinkish and vascular. The tendon is white, hard, and has little blood supply. The ulnar nerve lies

deep next to the flexor carpi ulnaris. This is much more easily found as it does not usually retract into the palm. With a book before you (if you do not understand the relationship), the nerves can be carefully approximated, end to end, with fine Number A Corticelli black silk and an ordinary straight needle. These needles can likewise be used for accurate end to end approximation of tendons. One does not need a lot of heavy stuff, because we flex the wrist when we put up the hand, so there is no tension whatever. The main thing is to take your time; it takes hours. I wish to illustrate the following hand, which took me some four hours; namely, from one until five o'clock in the morning. This man had every tendon cut in from three to six places. He is now able to shut his hand sufficiently to grip a steering wheel, to open his hand and button his clothes. One must spend plenty of time, sew accurately, and watch details. It requires a little technical knowledge and, if you are not sure of your anatomy, just put the book before you, chase the family out, follow the pictures, and you cannot go wrong. This same procedure should be followed in transverse cuts of the dorsal surfaces of the hands. I am not going to burden you with technical details or what to do when you see the end result of bad surgery, because one must alter the procedure to suit the individual case.

Simple Fracture of the Metacarpal and Phalangeal Bones. It is too often the practice simply to put these up on a piece of board and let them go, whereas a simple procedure will prevent most disabling deformities. There are two modes of procedure to follow, depending on the type of fracture we have to deal with. The first is to put the hand up by transfixing the terminal phalanx and the nail with No. 22 wire and using a banjo splint with elastic traction. The second is to put the hand up by curling it around a large bandage, thus maintaining constant traction.

Compound Comminuted Fractures. We treat these fractures, with a good deal of destruction of the soft tissue, such as one gets from explosions or when ground up in auto accidents, by swinging them up. Every household has a simple iron bed. There is always plenty of lumber to be obtained, and you can tie an overhead frame to any bed. Transfix the fingers with baling wire or wire from a piano, and swing the hand up so the weight of the arm in flexion will cause traction. It is then easy to irrigate, clean, and to remove from day to day the little sloughing which occurs.

In conclusion, remember one can easily obtain an artificial foot, but never since history began, has anyone been able to make an adequate hand. The hand is the most complicated piece of mechanism in all the world. The flexion, extension, abduction, adduction, the thumb and finger motion, with all the little delicacies which accompany it, cannot possibly be replaced.

It then behooves us to do everything we can to save the functions of the hand to the greatest possible extent.

DISCUSSION

DR. FRANK C. GOODWIN, El Paso, Texas (opening): I have enjoyed Doctor Von Wedel's wonderful paper very much and do not believe that I can add anything to it, as his subject has been covered so clearly and so concisely. I believe we should have more instruction on immobilization and on the treatment of fractures. The colleges graduate men every year, yet we seldom see any of the young graduates who have any idea of the use of plaster of paris bandages either in the application of casts or in the preparation of the bandages themselves.

DR. EARL McBRIDE (Oklahoma City, Okla.): As Doctor Von Wedel comes from my home town, naturally I want to back him up, and especially when he is doing such excellent technical work as has to be done in these cases. His work is very thorough and we think a great deal of Doctor Von Wedel back home. After his work is done we see results, wonderful results, that did not seem possible, and we then realize that the secret of success is attained by attention to details, and this Doctor Von Wedel gives to the nth degree.

DR. VON WEDEL (closing): I just want to say again that the men in the field must attempt to do things. While it takes hours and hours to work out some of these cases, and an infinite amount of patience, yet you can do it just the same and just as well as the other fellow, if you will take the time.

The Merck Institute of Therapeutic Research, Rahway, New Jersey, announces the appointment of Dr. Eugene Maier as Chief Bacteriologist.

Dr. Maier is a graduate of the University of Tuebingen, Wuertemberg, Germany, and completed his studies at the University of Erlangen, Germany

Dr. Maier was associated with the Rockefeller Institute of New York as Research Assistant from 1926 to 1930. Since 1931, up to the time of becoming associated with Merck & Co., Inc., Dr. Maier has been at Bellevue Hospital, New York, in the department of pathology, as bacteriologist for the Tuberculosis Division of Columbia University.

IS OUR PRESENT-DAY KNOWLEDGE ADEQUATE FOR THE CONTROL OF CLINICAL TUBERCULOSIS?

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El Paso, Texas.

(Read before the nineteenth annual session of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, December 7 to 9, 1933.)

We are in possession of sufficient knowledge of tuberculosis today to annihilate the infection in a generation. Such an audacious statement must take to its credit many refinements yet to be perfected, as well as careful correlation of facts developed in research not yet properly evaluated.

This statement is not fantastic, though we have to admit that no specific agent has been discovered that will destroy the tubercle bacillus in vivo. When every line of attack on this disease is examined, more skepticism prevails over developing a true specific for the destruction of the tubercle bacillus in the living organism than any of the several other offensive measures.

The time is possibly not far distant when a chemical agent will be found that will do this and yet not destroy the host. But invading organisms that are out in the vanguard, responsible for the spreading and progress of the disease, will continue to be beyond the realm of the blood and lymph circulations, and therefore very likely beyond the reach of a specific enemy.

The broad consensus of opinion is that mastery of this disease lies in utilizing our present knowledge and developing advantageous refinements of it.

I must of necessity pass that great and most important subject of prevention in this discussion. The welfare of all mankind has never been more handsomely served than when proper disposal of tuberculous sputum, elimination of tuberculous milk supply and the isolation of tuberculous patients came into practice. It remains yet to be proved whether or not attenuated vaccines, as developed by Calmette, will produce true and lasting immunity to this infection.

Herein we are considering our present-day knowledge of combating clinical tuberculosis. Miliary tuberculosis and the massive involvement of the non-allergic cases likewise cannot be considered here.

The great percentage of clinical tuberculosis develops in the individuals whose tissue cells are sensitive to the tubercle bacillus and its toxins and who possess some immunity, whether inherent or acquired. For years it has been considered that immunity against the tubercle bacillus and allergy to tuberculo-protein were one and the same. In more recent years, researches seem to prove that they are separate and distinct phenomena. Nature makes an heroic effort to produce immunity against the invading infection and in some way seems to produce a supersensitive state in the cells which we know as allergy, and which is fairly accurately measured by the tuberculin reaction. As we are able to desensitize individual cases sensitive to other proteins, recently it has been shown that tuberculous animals may be desensitized against tuberculoprotein by fractional and progressive doses of tuberculin, and, more significant still, that this desensitization does not reduce the immunity of the animals.

If these conclusions stand the tests, may we not be on the verge of developing what we might term the second great cycle of treatment of this disease? Clinicians have always noted the splendid progress of their cases during the first few months of the hygienic regimen. Then the average case passes into a stage when progress against the disease seems at a standstill. Though the patient is afebril and has gained weight, he develops another syndrome, characterized by spasmodic cough, fits of dyspnea, cessation of sputum drainage, and the consequent acute exacerbation.

May not the development of this syndrome mark the arrival at the supersensitive or allergic state, and may the bronchial reaction be an angio-neurotic edema of the mucosa occluding the bronchial lumina, mechanically obstructing drainage and accounting for the acute illness? If desensitization could bring relief from this syndrome and not reduce immunity, might it not mean progress for the second cycle of treatment that would prove as gratifying as the first?

Many phthisiologists have felt that tuberculin has been shelved as a therapeutic agent only until its action on the tuberculous organism can be better understood. Not only are we coming to know allergy and immunity better, but very gratifying progress has been made in refinements of tuberculin itself.

Koch's old tuberculin is an emulsion of dead tubercle bacilli and it has long been recognized as a crude product, since the bacillus is known to have protein and carbohydrate elements as well as a lipoid or fatty capsule. More recent researches have resulted in separating into the pure state the protein element and the carbohydrate element as well. In fact the carbodydrate element has itself been separated into twenty-some polysaccharides. Tissue cells of this tuberculous organism have a specific reaction to the pure protein element of the tubercle bacillus and to the carbohydrate element as well. It can readily be seen that from these developments we may expect accurately measured tuberculin elements producing accurately controlled reactions.

As a practical working basis, clinicians have considered the early diagnosis of clinical tuberculosis to be the recognition of that stage of the disease that produces low-grade temperature, loss of weight, night sweats and brassy cough. We have failed to embed into our diagnostic armamentarium the consciousness of the long-known clinical fact that there has been an acute onset, commonly termed a bronchopneumonia, that has preceded this slow sedentary second stage by weeks. It is my firm belief that, if every practitioner of medicine could go to the bedside of the acute pulmonary case with the consciousness that that "flu" or bronchopneumonia may have as its etiological factor the tubercle bacillus, suspicious histories would result in the observation of many cases over weeks and months, together with x-ray photographs, the result of which would be true early diagnosis of clinical tuberculosis to the degree that it would prove the most gratifying advance made against this infection since the discovery of the tubercle bacillus.

Developments of the past few years have brought more accurate estimates of the progress of a given case and have revised our former misconceptions. A few years ago we regarded the x-ray as of value in diagnosis only. During the last decade we have come to know that it is our most accurate means of estimating progress of the pulmonary lesion. As early as 1921, Amberson[1] pointed out the value of serial stereoroentgenograms to determine progression or retrogression of the pulmonary lesion.

McPhedran[2] states: "The x-ray is the method of precision for detecting the presence and evaluating the exact severity and direction of changes of a lesion." Fales[3] points out the great value of x-ray in the management of bed rest; that when formerly we modified bed rest when the temperature became normal and there was a gain in weight, "Clinicians, after adopting serial roentgenograms found how slow the clearing of the lung changes was in comparison with the improvement of the general conditions of the patient."

During the war, the United States Army established the arbitrary rule that persistent moist rales accentuated by cough indicated active pulmonary tuberculosis, and their disappearance meant arrest of the disease. It has been hard to dethrone the rale from his pinnacle of importance, but that has come to pass. Bruns[4] shows that rales are not due to moisture in the terminal bronchioles, as previously taught, but are due to expansion of partially collapsed alveoli or lobules from pressure of a neighboring lobule consolidated by tuberculous infiltration, fibrosis, or adhesions. Heise[5] has shown the very slight value of an increase or diminution of rales in determining the progress of a patient. On one point all seem to agree: the presence of rales in a case of long standing and unsupported by other findings is insufficient evidence to declare a case still active tuberculosis. I think most of us feel that the earlier the exudative lesion. the more significant are moist rales accentuated by cough, and the older or more chronic the lesion, the less significant are moist rales.

Standing next in importance to the x-ray in estimating the progress of clinical tuberculosis, are blood findings. The blood sedimentation tests, as refined by Greisheimer and Cutler, proved a very accurate estimate of the amount of cellular destruction going on in the organism, and for that reason they are especially applicable in tuberculosis.

The studies of the monocyte by Medlar and our own John Flinn, the monocytic-lymphocytic ratio and the relationship of these cells to the neutrophile, have brought information similar to the blood sedimentation but more accurate and more detailed. The information from blood studies not only reveals the present state of the disease with marked accuracy, but significant blood changes prognosticate impending retrogressive changes prior to the appearance of physical signs. The value of such advanced information cannot be over estimated.

If we have a detailed understanding of just what effect treatment has upon pathology in pulmonary tuberculosis, and to what end we are working with a certain line of treatment, we can eliminate hoodoo medicine and exaggerated claims on the optimistic side and can anticipate retrogression in time to alter treatment effectively on the pessimistic side.

When the case is undergoing the earlier pathological changes of infiltration and exudation, hygiene has held against all attacks. By hygiene we understand rest in bed, fresh air, good food, and all the details of good sanitation. When the patient is weak, thin, febrile and sweating at night, we have him in bed in a room with windows open. When fever and sweating subside, he is moved to the sleeping porch, where he gets more air and some air motion. When the patient is afebrile and weight has been gained, this hygiene may be intensified by providing more air motion and indirect sunlight. As the fibrosing stage is reached, hygiene can be intensified by stripping down the patient for the air bath and then to the sun bath. Finally he may be exercised nude on a promenade exposed to air, air motion, temperature change, and direct sunlight. When heliotherapy is evaluated as a degree of hygiene only, the air, air motion, temperature change, are considered to play as important a part as radiation and to be applied gradually and never abruptly, the hoodooism of lamps and misguided ideas of miraculous sun cures will be destroyed and a valuable therapeutic agent preserved.

When I stated above that hygiene was the treatment for the infiltrative and exudative stages of the disease, my little plan for intensified hygiene assumed a favorable progress toward fibrosis and healing. Only too frequently our cases do not present, until the exudative process has gone on to secondary infection, ulceration and cavitation. Then, in addition to our hygienic problem, we have a mechanical one. There is just one way to meet a mechanical problem and that is by mechanics.

Here we come to the theater in the treatment of pulmonary tuberculosis. For the development of the last decade in collapse therapy, with its many ingenious surgical procedures, has been most spectacular and dramatic. Heading the list is artificial pneumothorax, recent outstanding refinements of which are low-pressure pneumothorax, bilateral pneumothorax, complete drainage of effusions as pointed out by Nalbout[6], oleothorax for infections, and mediastinal anchorage. There are also the very important supplemental procedures that have made pneumothorax successful in an additional twenty per cent of cases, namely the pneumolysis of Jacobeus and phrenicectomy. Brune and Casper[7] summarize as follows: "In late years our greatest progress in phthisiotherapy has been in the treatment of advanced cases of pulmonary tuberculosis which were formerly considered hopeless and were abandoned to the natural evolution of the disease. Our great problem in the treatment of chronic pulmonary tuberculosis is the closure of pulmonary cavities."

Eighty per cent of cases with cavitation die if the cavity is untreated.

Extrapleural thoracoplasty has been practised successfully and extensively during the past ten years, to collapse cavities where simple collapse methods have failed. This operation has been refined and supplemented by pneumolysis according to the Casper technic, and unroofing of cavities, to where few cavities resist surgical attack today.

Coryllos[8] has made a most valuable contribution to collapse therapy by showing the importance of atelectasis. A cavity is held inflated because of air intake through a sinus and communicating bronchus, which not only exaggerates the mechanical problem, but the presence of oxygen in the inflated cavity is necessary food to acid-fast bacilli. Collapse, therefore, produces atelectasis by torsion on the connecting bronchus to the cavity, more

important than pressure on the cavity itself, because atelectasis results, producing more complete collapse and tubercle bacilli are rendered dormant by absence of oxygen.

Mechanical attacks are now so successful that it seems justifiable to lay down an arbitrary rule that open tuberculosis must be closed.

Actually we are in the midst of a mopping-up campaign at this time, closing the cavities and open tuberculosis accumulated during the last generation. Effective treatment will save the lives of many and death will claim those where treatment fails, so that in a brief span of years the old cavity cases will have disappeared. What are the prospects for effectively controlling the disease in the future and reducing the incidence of cavitation or advanced tuberculosis? Is it fantastic to assume that within a few years we may have this great infection under the control of our present instruments of attack?

Proper recognition of the acute onset of early tuberculosis, with serial x-rays following suspicious bronchopneumonias, should yield a high percentage of diagnosis of true early tuberculosis. Place those cases in bed, studying the progress of the disease with more frequent x-rays and routine blood studies, and impending retrogression can be foreseen in time to meet the issue. As the case will permit, attempt to intensify the hygiene gradually by fresh air, open air, air baths, and radiation, and the result will be obvious.

We are hopeful that the management of the allergic phase of the disease, possibly with desensitization methods, will place under control that second cycle of the disease, which will save many cases from advanced or cavitation stage of tuberculosis.

Supplement this hygienic management with the less radical collapse methods, like pneumothorax and phrenicectomy, and it seems valid to claim that we would have this infection under the same control as other diseases that have been mastered, like smallpox, typhoid fever and diphtheria. And if such an hypothesis is ever proved, it would place radical surgical procedures as the treatment of pulmonary tuberculosis in past history, with a glorious monument to its memory as having served effectively the cause of heroic therapy in a fight against the cavity, but leaving the field of the future to hygiene and conservatism.

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DOES TONSILLECTOMY LIGHT UP LATENT TUBERCULOSIS?

E. W. PHILLIPS, M. D.
Phoenix, Arizona.

(Read before the nineteenth annual session of The Medical and Surgical Association of the Southwest, held at El Paso, Texas, Dec. 7 to 9, 1933.)

Some years ago I heard a physician, speaking informally before a medical meeting, discuss the physiology of the tonsil. At that time the campaign of minor surgery against foci of infection, teeth and tonsils in particular, was still going strong. This doctor counseled moderation. He claimed that the tonsil, situated at the junction of the upper respiratory and digestive tracts, served as a first line of defense in many infections, including tuberculosis. "We know, of course," he remarked, "that in young adults tonsillectomy is liable to be followed by the onset of pulmonary tuberculosis."

I did not know it, nor could I find statistics upon which the assertion might be based. The remark was vividly recalled, a year or so later, by an unfortunate result in one of my own cases. The patient, a college student, after the apparent arrest of a moderately advanced tu-

berculosis, had completed her college course and was working. Her health, however, was not so good as formerly; she was thin and easily fatigued. Her tonsils were large and obviously infected. On my advice they were removed. Although the operation was skilfully done, the throat was slow to heal, and before healing was completed there occurred a destructive reactivation of her lung disease.

This led me to undertake a more careful examination of my tuberculosis patients as to whether their tonsils had been removed; and if so, when, for the relief of what symptoms, and with what result. In 1927 I reviewed the records of 365 patients so studied. Of these, sixty-three, or about 17 per cent, had undergone tonsillectomy; seventeen during childhood, eighteen during adolescence, twenty-four in the third decade of life when the incidence of tuberculosis is highest, and four after the age of 30.

It was not always possible to learn the reasons for tonsillectomy during childhood, but those patients who were operated in later life knew the complaints with which they had gone to their doctors, and whether or not they had been relieved. Their symptoms may be classed as local and constitutional, definite or equivocal. The definite local symptoms were those of acute tonsillar infection; the definite constitutional symptoms, those of its well-known complications. The equivocal local symptoms included repeated colds, dryness of the throat, transient hoarseness, more or less cough, sometimes expectoration. The equivocal constitutional symptoms were asthenia, expressed as "tired all the time" or "loss of pep;" disturbances of digestion, and frequently aching in the neck, shoulders and legs.

When the cases were considered as a group it was apparent that the results of tonsillectomy bore a definite relation to the age at operation, and also to the symptoms for which relief had been sought. The patients operated during childhood all had good results, and their averaged interval between operation and the onset of tuberculosis was nearly 11 years.

Of the adolesents, nine gave a history of frank tonsilitis; these were all relieved by operation, they felt well after it, and there is nothing to suggest that tonsil surgery was related to the tuberculosis which appeared, on the average, nearly six years later. But the remaining nine patients of this age group, whose complaints had been equivocal and suggestive of focal infection, soon developed tuberculosis.

Of the twenty-four young adults (age 20-29) there were eight who had frank tonsillar infection. Seven were relieved, one still had tonsils and tonsillitis; again, in these eight cases, it seems clear that operation was not related to the onset of clinical tuberculosis some 5 years later. But the remaining sixteen of this age group, whose complaints had been not definite but equivocal, within the significantly brief time (averaged) of 5 months fell ill with tuberculosis.

None of the four middle-aged had been subject to acute tonsillitis, all had complained of failing health, and all broke down with tuberculosis not long thereafter.

A few case records are cited by way of illustration.

CASE 1. J. B., a student nurse, aged 18. She came from a mountain district where she had never seen tuberculosis, and entered training in a small hospital. She had always been very strong, but after 10 months of training she began to feel tired and aching, and had occasional "choking spells," as she called them. Her supervising nurse had her examined by a doctor, who removed her tonsils under ether. The wounds did not heal, and a month later she had a throat infection with fever, diagnosed as mumps. She continued to cough and in six more weeks developed abdominal cramps, with fever. Her appendix was then removed. The fever continued and a diagnosis of influenza was made; the influenza symptoms persisting, her sputum was examined and found to contain tubercle bacilli. When she was admitted to the sanitarium she had far-advanced tuberculosis involving both lungs, the larynx, the cecum, and the ascending colon.

Comment: This is of course an extreme case However, it is possible that student nurses in other institutions suffer from too much surgical attention.

CASE 2. S. H., a clerk, aged 27, had a series of colds in the spring; he felt sluggish and tired all summer, had a cough for which he blamed cigarettes. In September he had pleurisy. During this period of ill health his chest was repeatedly examined, with negative findings; but it was not x-rayed, nor was his sputum examined. Tonsillectomy was done in October. He felt no better after it, and stopped work. A roentgenogram made 6 months after operation showed considerable involvement of both lungs.

Comment: This history, verified in all its details, is fairly typical of the bad-result group operated in young adult life.

CASE 3. H. B., a brakeman, aged 37. For more

than a year he felt stiff, aching, and very tired when he came in from his trips. An ischiorectal abscess occurred, and it was drained under ether anesthesia. He resumed work, feeling the same as before. Six months later he went back to the company surgeon with the same indefinite complaint of "general debility." His tonsils were then removed. He did not complain of cough or expectoration, and no examination of chest or sputum was made. His health and strength continued to fail, and he was sent to the hospital. The chest x-ray showed old thick-walled cavities in both upper lobes, with the coalescing densities of recent and active disease spreading downward into both lung fields.

Comment: The inarticulateness of certain people, their inability to state their complaints understandably, may mislead an examiner unless he takes time for a thorough examination.

Summarizing this first series, reviewed in 1927, there seemed to be no bad results from tonsillectomies done in childhood, presumably for tonsillar infection. One-half of the operations performed in adolescence and one-third of those in young adult life had resulted favorably. But in twenty-nine cases, mostly those in which tonsillectomy had been done on equivocal indications, for the relief of focal infection or failing general health, the operation had been followed shortly by the onset of tuberculosis. Whether the toxic symptoms had been caused by unrecognized tuberculosis, or whether in some cases the operation actually provoked the onset, could not be determined.

Recently I have reviewed the records of 320 tuberculosis patients examined during the last three years, and studied in the light of what was learned from the earlier series. By comparison, the percentage of those deprived of their tonsils has increased, being 23 per cent in the later series. A tendency to operate at an earlier age is evident; the selection of patients for operation has been more judicious, and the results are better. The proportion of operations done by nose and throat specialists has increased.

The detailed results, and the interval between tonsillectomy and tuberculosis onset are shown for the second series in Table 1. It may be summarized by saying that all of those operated in childhood had good results; their interval to onset was 11½ years. Two-thirds of those operated in adolescence had good results and 9 years' interval before tuberculosis appeared; but the others, with temporary or partial relief, or none at all, soon developed tuberculosis. The third decade of life again had the greatest number of tonsillectomies,* in one-half of which the results were good and the interval to onset long; but the rest soon broke down with tuberculosis. Only two of the seven middle-aged persons subjected to tonsillectomy were relieved and remained well for a considerable time; the others, after relatively brief intervals, became ill with tuberculosis.

TONSILLECTOMY AND TUBERCULOSIS—TABLE 1.

Series of 1933—320 Tuberculosis Patients—74, or 23%, Had Tonsillectomy Before Onset

Age at Operation No. of Patients	Relief	Years to Onset	Partial or Temporary Relief	Years to Onset	No Relief	Years to Onset
Childhood 22 Patients	22=100%	11½	0		0	
Adolescence 21 Patients	13=62% (1 bad local—4%)	9	3=19%	2½	4=19%	Less than 1 yr.
Age 20-29 24 Patients	12=50% (1 bad local—4%)	8	4=17%	2	7=29%	Less than 1 yr.
Age 30-50 7 Patients	2=29%	5½	2=29%	2½	3=42%	Less than 1 yr.
74 Total	51		9		14	

DISCUSSION

Caution is needed in interpreting figures of this sort. The evidence is in part indirect, the number of cases small. The question presented can be answered finally only by the coordinated effort of workers in the two special fields, the throat and the chest. Still, the study of the material presented justifies certain conclusions.

It is clear that tonsillectomy in chlidhood does not protect against tuberculosis; neither does it predispose to tuberculosis, as the long interval from operation to onset shows.

In these two series of cases there is no evidence that tonsillectomy for the relief of acute tonsillar infection precipitated the onset of tuberculosis, whatever the patient's age.

The percentage of results satisfactory to the

patients varied inversely with the age at operation; the older, the worse.

In these two series of consecutive cases separated by an interval of six years, a considerable number of consumptives—7 per cent of the total in the second series, 8 per cent in the first—had undergone tonsillectomy, with little or no relief of symptoms, shortly before the onset of clinical tuberculosis.

Most of those who had little or no relief after tonsillectomy, with tuberculosis following soon thereafter, had complained of equivocal symptoms of the sort often attributed to focal infection—symptoms: hardly distinguishable from the toxic manifestations of early tuberculosis. In these cases, as in the successful ones, we must assume that the surgeons who operated found the tonsils so diseased as to afford a reasonable explanation of the symptoms, and that nothing in the patients' condition offered a contra-indication to operation. But if we make this assumption we can hardly escape the suspicion that in some instances at least the tonsillectomy precipitated the onset of clinical tuberculosis. This onset occurred too early and too often to be a coincidence.

Therefore, in the present state of our knowledge, it would seem to be the duty of the surgeon, before removing the tonsils of an adult or an adolescent for the relief of focal infection, to inform himself well concerning the condition of that patient's lungs. A casual examination of the chest is not sufficient; if there is the least doubt after a careful physical examination, the chest should be x-rayed, and the film should be interpreted by one skilled and experienced in that work. If there is a productive cough, the sputum should always be examined for tubercle bacilli. This opportunity for early diagnosis, creditable to the physician and most advantageous to the patient, should not be neglected.

In conclusion, let me emphasize that this paper is not an indictment of the operation of tonsillectomy nor of those who perform it. Rather, it is a plea for a greater degree of awareness of the onset symptoms of pulmonary tuberculosis, a common disease; and for the withholding of non-urgent tonsil surgery when tuberculosis is present or suspected.

* This high proportion, 32.4 per cent of the total, who had tonsillectomy during the third decade of life is unusual, and probably significant. Thus, Dr. W. A. Schwartz of Phoenix states in a personal communication that of 379 tonsillectomies performed since January, 1931, some 56 per cent were done during childhood, 5.5 per cent during adolescence, and 13.7 per cent on patients in the 20-29 year age group.

DISCUSSION

DR. FRANK SCHUSTER (El Paso): I have enjoyed Dr. Phillips' paper and I believe it raises an important question in which we, particularly in the Southwest, should be interested.

We must be careful, as Dr. Phillips states, in drawing hasty conclusions from these statistics. There are two sides to this picture and I believe we would have a more complete picture if we compared his figures with a similar group of cases in which tonsillectomy was advised, but not performed. Is it not possible, even probable, in such a group, that a certain percentage of active tuberculosis would develop, and this might even be precipitated by an attack of acute tonsillitis or any other intercurrent debilitating condition, as well as by a tonsillectomy.

It has been our practice to advise tonsillectomy for two principal reasons: (1) purely local, (2) focal or constitutional. That is, if we have a patient whose only symptoms are three or four attacks of tonsillitis a year, which cause the patient to lose several weeks a year from school or his usual occupation, then operation is advised purely for the local condition. From Dr. Phillips' paper, I conclude this type of case has almost uniform benefit.

In the second type, complaining of the so-called equivocal symptoms, we are most careful in our history and physical examination. It is a pretty poor tonsil in which we cannot find some evidence of chronic infection. We try, therefore, to investigate not only the tonsils, but the other foci of infection, such as teeth, sinuses, and prostate. A general examination, including x-rays of chest, is made, and tonsillectomy is advised only after we are reasonably sure, not only that the tonsils are infected, but that they are the probable focus of infection and causing the symptoms. If our conclusions are not definite, a period of observation and recheck is advised. In this we try to eliminate the potential breakdown case.

It is not easy to eliminate these potential tuberculous patients. In the first place, a patient with latent tuberculosis who develops symptoms is never willing to believe his tuberculosis is causing the symptoms. The tonsils are a convenient place to lay the blame and he is willing and anxious to find it there. Then, again, as the doctor has emphasized, we do not ordinarily take a complete history or physical examination on our tonsil cases. The differential diagnosis between chronic tonsillitis and incipient tuberculosis, may be extremely difficult. The history and physical findings may be identical. We may get the same history of loss of weight, loss of appetite, rapid pulse, low-grade temperature, night sweats, and so forth, even cough and blood-spitting, common to the two conditions. A negative

sputum does not rule out incipient tuberculosis. In such cases, until a positive diagnosis is possible, the potential dangers far outweigh the benefits expected and the operation should be postponed for a period of observation.

I think it is generally conceded that we practically all acquire tuberculosis in early childhood, which heals and may never become active. Secondary or intercurrent disease causes the breakdown and activity to take place. Therefore, elimination of these infections should help prevent activity developing.

Crowe at Johns Hopkins has frequently found tuberculosis in the tonsils removed in children for general indications. It is probable that the tonsil is a point where the tubercle bacillus gains entrance to the system and from there by lymphatics to the peribronchial glands. From this we might even argue that tonsillectomy may prevent tuberculosis reaching the peribronchial glands in children. We find in the literature many cases in which, in incipient and active tuberculosis tonsillectomy is advised and has a beneficial influence on the tuberculous process.

Terry and associates, at the Veterans' Hospital at Oteen, state that they do not hesitate to perform tonsillectomy where indicated, in active tuberculous patients. They found 12.5 per cent of their patients showed tuberculosis in the tonsil on laboratory examination.

Personally, we do not hesitate to do tonsillectomy on tuberculous patients where the indication is definite and clear. We do prefer to wait for an arrest or quiescence of the tuberculous process and then work in close cooperation with the chest men and use only local anesthesia.

I can, therefore, heartliy agree with Dr. Phillips that we, especially in this Southwest section, should work more closely with the chest man, take more careful histories, in cases of doubt postpone the operation for a period of observation, and continue to gather these statistics until we can arrive at the true relationship of the tonsil to tuberculosis.

Tonsillectomy is still looked upon as minor surgery. Many physicians consider this operation an office procedure. It may be in many cases, but when we realize the potential tragic results and have figures such as the doctor has presented today, we should not recommend this procedure without careful weighing of the benefits expected against the potential dangers of the operation.

THE TREATMENT OF TUBERCULOUS PULMONARY CAVITY.

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(Read before the nineteenth annual session of The Medical and Surgical Association of the Southwest, held at El Paso, Texas, Dec. 7 to 9, 1933.)

The treatment of pulmonary cavity has, during the past decade, received ever-increasing attention. So important a place in phthisiotherapy has it come to occupy that one author, Fischel[1], in a recent paper has made the statement that "the treatment of pulmonary tuberculosis is to a great extent the treatment of cavities."

The serious prognostic import of cavities has long been recognized, but there is still a great difference of opinion as to the degree of this seriousness. On the one hand, we have opinions such as Graeff[2] expressed as far back as 1921, that the presence of a tuberculous cavity spells death to the bearer. Geigler[3], in a series of seventy-two cavity cases, found none which completely healed. Barnes and Barnes[4], in a large series of cases at the Rhode Island State Sanatorium, found that 80 per cent of cavity cases died within the first year and 90 per cent within five years. Pinner[5] also, has emhasized the relatively brief average survival of cavity bearers.

As opposed to these authorities, others have given a more optimistic outlook. To mention a few, Turban and Staube[6], Ritschel[7], Courcoux and Gelson[8], Baum, Mebel and Kane[9], and Jaquerod[10] have all stressed the not infrequent spontaneous closure of cavities. A recent study by Fales and Beaudet[11], from the Veterans' Bureau Hospital at Livermore, California, bears the conclusion that "a surprisingly large percentage of cavities healed on prolonged and thorough rest treatment, rather than a small minority as stated by some writers." They state that rest treatment appears to them of greater importance in the healing of cavity than surgical measures and they would resort to the latter only after a long trial of rest.

In spite of this seeming confusion of views and divergence of opinions as to the prognosis of cavities, I believe this fact does stand out. Tuberculous cavities, even though we agree that they may, and possibly not rarely do, heal spontaneously, add immensely to the gravity of prognosis. Most important is it, therefore, to get them closed whenever possible, by one therapeutic method or another.

Many classifications of pulmonary cavities have been attempted and a consideration of them may be of help in treatment. They may be classified by size, into small, medium, and large; by shape, into round and irregular; by age, into recent or old, acute or chronic; by number, into single or multiple; by the condition of their walls, into thin or thick walled, smooth or ragged walled. Attempt has also been made to differentiate them, following Ranke's theory, into primary, secondary, and tertiary, according to the stage of the disease in which they arise. Especially helpful are two recent attempts at classification made by Jaquerod[10] and by Pinner.[13]

Jaquerod divides cavities into three groups. It is a classification based fundamentally on the age of the cavity. The first group he calls the precavity. It is characterized by the roentgenologic appearance of a hazy ring shadow with more or less opaque interior and often is not accompanied by purulent expectoration or tubercle bacilli in the sputum. He believes that it signifies the earliest stage in which softening of the area involved and an attempt at walling off has occurred, before any expulsion of the contents has taken place. Jaquerod's second group comprises the round, fairly thin-walled cavity with roentgenologically transparent interior and often with a haziness surrounding the ring, indicating inflammatory exudation. His third group includes all older cavities, either round or of irregular shape and in which a more or less heavy fibrous wall has been formed.

Pinner's classification is also based partly on age but takes into consideration the nature of the tuberculous process in which the cavity arises and the anatomico-histologic structure of the cavity wall. It also comprises three types. The first is described as moth-eaten areas in infiltrated parenchyma due to small multiple cavities which are surrounded by exudative tuberculous processes. It represents a loss of tissue in an area of tuberculous pneumonia. Pinner's second type is the round or oval cavity, roentgenologically appearing as an annular shadow of smooth outline and without any marked distortion of shape. It represents a loss of tissue due to an exudative lesion, with a new-formed cavity wall consisting of a thin layer of concentrically arranged young connective-tissue fibers. His third type, the fibrotic irregular cavity, represents older forms in which heavy fibrosis, often with resulting distortion, has taken place in the cavity wall, surrounding tissues, or overlying pleura.

It will be seen that Jaquerod's and Pinner's second and third types of cavities are practically identical. Jaquerod's first type is only an earlier stage of his second type, while Pinner's first type deals with an essentially different condition—the very acute non-walled excavations arising in a pneumonic process.

I have reviewed these classifications of cavities somewhat at length because they are of considerable help in treatment and I shall refer to them subsequently.

We certainly can not lay down any hard and fast rules as to how cavities should be treated. Our only hard and fast rule must be, in this as in any other field of medicnie, to keep constantly in mind that we are treating the individual patient rather than his disease. Perhaps more harm is done and more therapeutic failures are caused by the neglect of physicians to grasp or to practise this precept than by any other fault on their part. We must individualize each patient, endeavoring to do for Mr. A., who has a pulmonary cavity, the things which, taking into consideration his whole condition, circumstances, and environment, will give him the best chance. What I shall say, therefore, on this subject I do not regard at all as rules for the treatment of pulmonary cavities, but as broad generalizations from my own or others' experience which may apply to the individual case, or which may in that particular case have to be departed from.

Given the problem of a patient with tuberculous pulmonary cavity, we shall in general have to choose in his treatment between three main courses. First, we may decide to treat

expectantly by rest. Or, second, we may decide to supplement rest by one or more of the collapse methods—artificial pneumothorax, phrenic nerve paralysis, or thoracoplasty. Or, third, we may decide that the best course is to allow the patient to undertake a more-or-less active life without special measures. In deciding our problem, the following general principles may be of help as therapeutic guides.

First, let us consider those which deal with the character of the cavity itself.

Generally speaking, the more acute the pathologic process in which cavitation is taking place, the greater the indication for immediate therapy. In fact, with acute exudative processes, tuberculous pneumonia, unless there are absolute contraindications, artificial pneumothorax should be resorted to, if possible, either immediately on the appearance of such a process or preferably on the first appearance of cavitation. Pinner's first type of cavity, honey-combing in a pneumonic area, should be collapsed without delay and before the almost inevitable extensive cavitation or extension of involved areas has resulted. A successful collapse offers the best chance of checking the process.

With more chronic processes, time is of less importance. The smaller the cavity, the more regular its shape, the more recent its development, the thinner—the less heavily fibrosed—its wall, the closer its location to the apex, the less the adjacent pulmonary involvement, and the less advanced and active the disease in other parts of the lungs, the better the chance of healing on simple rest therapy. Therefore, in the case of recent, small, round, thin-walled cavity in the upper third of the lung, with little involvement in the rest of the lung, it may be safe to postpone collapse therapy, put the patient on bed rest and watch developments in serial roentgenograms. This is Jaquerod's and Pinner's second type of cavity and is the type which undoubtedly frequently heals spontaneously and has occasioned the favorable reports mentioned at the beginning of this paper. On the other hand, it must be remembered that this is also the type of cavity which yields most readily to collapse therapy, and that delay may mean the production of a heavily fibrosed wall, or of pleural adhesion preventing successful collapse. It often becomes a nice question of judgment whether to wait or immediately to attempt a collapse. Certainly, unless a short period of observation shows a decided tendency to heal by contraction, it would seem unwise to delay longer—unless definite contra-indications exist—an attempt at artificial pneumothorax.

The longer a cavity remains unhealed, the greater the danger to the patient from the accidents attendant on active cavitation, such as hemorrhage or bronchogenic spread from aspiration of secretion into uninvolved areas. If by one method a certain cavity might heal in one year and by another method in two years, it is plain that the risk of such an accident, often most serious in its consequences, is just twice as great if resort is had to the longer method. This is evidently a truism, but one to which I believe we pay too little attention in our selection of methods. And this, of course, entirely aside from the standpoint of the patient's comfort, happiness, and expense involved in a shorter period of disability. This is a strong argument for resort when possible to collapse therapy.

It has also seemed to me that cavities which have healed spontaneously have a greater tendency to reopen again than those which have healed under collapse therapy. If this is a fact, it is also an argument for collapse therapy.

Old, heavily walled cavities, especially those in which there is much fibrosis in surrounding tissues, the third-type cavities of Jaquerod or Pinner, are generally difficult to heal by any method. Occasionally they do heal by long-continued rest. Not infrequently an artificial pneumothorax and occasionally a phrenic paralysis, while not collapsing them quickly as in the case of more recent excavations, will relieve the tension on their walls sufficiently to enable a gradual healing. Thoracoplasty has perhaps its greatest field in collapsing these resistant cavities and sometimes achieves spectacular results.

Second, we may consider principles which deal with the general condition, antecedent history, and economic circumstances of the patient.

The patient's age is of importance. In general with adults, the older the patient, the more conservative should we be in regard to

operative measures. According to Matson[13], it is seldom advisable to attempt a severe operation like thoracoplasty with patients over forty years old. I would not attempt to set any limit for milder forms of surgery like artificial pneumothorax or phrenicectomy, though even here, with elderly patients we should certainly be much more cautious than with those in youth or middle age. I believe also that this applies in lesser degree to prolonged bed-rest treatment. The youthful patient can be given such for months or years with impunity. With the elderly, the loss of tone in heart and other muscles may be such as to overbalance any benefit to the lungs, and make the treatment worse than the disease.

Severe complications, tuberculous or non-tuberculous, should also be very carefully considered when thinking of surgery. In the presence of these we may often feel that the chance of harming our patient out-weighs the chance of doing him good. This may also apply to patients desperately sick from their pulmonary disease, especially if we are convinced that much of their toxemia is from the contralateral lung.

Bilateral involvement has in the past been considered a contra-indication to collapse therapy. Today many such cases are being treated successfully by the use of bilateral pneumothorax, or by pneumothorax on one side and phrenic nerve paralysis on the other.

The antecedent history, especially as to the patient's previous reaction to tuberculous infection, should be given due weight. If he has shown an ability to fibrose his lesions promptly, if he has previously healed cavities without surgery, and if his present condition is not an acutely progressing one, we shall certainly be less inclined to resort immediately to collapse.

The economic factor may well be the deciding one in the individual case when the question is at a balance. The patient who can afford to spend years, if necessary, in his attempt to regain health, is in a very different category as regards treatment from the one whose limited means make it essential that he get quickly back to work. With the latter, we may feel justified in taking chances on surgical treatment that we would not with the former. This applies especially to thoracoplasty. As aganist this, however, we must not forget the factor I have already mentioned of the multiplied risk with the slower method.

Third, we may consider the choice of surgical procedures.

Of the different collapse measures, artificial pneumothorax, when it can be induced, generally gives best results and should almost always be the first choice. Phrenic nerve paralysis has had a great vogue in recent years and undoubtedly is very often helpful. I believe, however, that the tendency has been to overestimate its value, and that harm may have been done by an over-enthusiastic and uncritical use of it So far as its use in the treatment of cavity is concerned, I believe that it should generally be tried only in those cases where an artificial pneumothorax is indicated but in which, after trial, it is found that a successful one can not be induced. The collapse and the pulmonary rest produced by it are so inferior to those of a successful pneumothorax that only with rare exceptions should it be given preference. Such an exception, for instance, might be when it is known that the patient is soon to go to a place where pneumothorax refills can not be obtained. It is often also a helpful adjunct to pneumothorax, especially when adhesions to the diaphragm prevent a good collapse, and is generally used as an adjunct to thoracoplasty.

Thoracoplasty also should generally not be used until after an unsuccessful pneumothorax, for the reasons that it does not give as good a collapse as a good pneumothorax, that it can not be undone if the patient should be reacting badly to it, and that it is a much more serious operation and one that is attended by much greater risk. Its principle field, in so far as our subject is concerned, is in the collapse of cavities with stiff walls or with overlying pleural adhesions sufficient to prevent a collapse by pneumothorax, in patients not past middle age in good general condition, and with the contralateral lung not involved or involved with only slight non-progressive lesions.

I have not time to take up in detail the various adjunct surgical measures which have been devised to assist one or the other of these main measures in collapsing the lung. Intrapleural or extrapleural pneumolysis may, in the hands of an expert chest surgeon, occasionally be of great help in freeing adhesions

which are preventing a successful pneumothorax; extrapleural filling operations should theoretically be very useful in adherent apical cavities, although practically they do not seem to have met with great success; intercostal neurectomy as advocated by Alexander[14], and scaleniotomy, by Gale[15], may possibly in selected cases be of slight help as an adjunct to phrenic nerve paralysis or to thoracoplasty.

With these general principles in mind, dealing as they do with types of cavity, condition and circumstances of the patient, and choice of operative procedures, we may try to select for the individual cavity patient the method best suited to his case.

In general, we shall treat by rest without surgical measures, even though there may be no contra-indication to such, for a period of observation, recent small favorably located cavities. We shall not, however, delay very long, even with such favorable cavities, to try artificial pneumothorax, if they are not found to be fairly rapidly healing by contraction. We shall be forced to treat by rest large numbers of cavity patients in whom contra-indications to surgical procedures exist. The most common contra-indication is active progressive disease with or without cavitation in the other lung. Bilateral pneumothorax is being tried more and more in such cases and sometimes meets with striking success. From several recent cases, I have been much impressed with its possibilities and with its value. Dyspnea, if at all severe, from any cause, is a contra-indication to surgical measures. Severe complications, tuberculous or otherwise, which make a hopeless prognosis, are also contra-indications which may make it seem useless or dangerous to use any other measure than rest.

By artificial pneumothorax we shall generally attempt to treat, either immediately or after a period of observation on rest, cavities of almost any type in which no contra-indications are present. Especially shall we use it without delay in acute progressing processes of the pneumonic or exudative type.

Phrenic nerve paralysis we shall use in cases where pneumothorax is indicated but can not on trial be induced, and we shall frequently use it to supplement an insufficient pneumothorax.

One of the various thoracoplastic procedures we shall reserve for either recent or old cavities in fairly young patients, preferably those not over forty years old, in good general condition, with no involvement or only slight inactive involvement of the other lung, in whom a satisfactory pneumothorax can not be induced and in whom phrenicectomy alone, as is generally the case, will seem insufficient.

And finally there will be a considerable number of cavity bearers whom we can not, for one reason or another, treat surgically and who, we may feel, are no longer benefited by a continued rest cure. We shall arrive at such a conclusion perhaps because we have ourselves watched the patient through a prolonged rest cure during which constitutional symptoms have ceased and the pathologic process in the lungs has come to a standstill, but the cavity still exists. There comes a time with such a patient when we shall feel it advisable to attempt by graduated exercise to determine his tolerance and to get him back, within his limitations, to a more natural mode of living. Or a cavity patient may present himself to us for the first time, with a story of having for a long period lived a life of ordinary activity without undue inconvenience or ill health, and we may feel that nothing is to be gained and perhaps much lost by making an invalid of such a one. Especially in elderly tuberculous patients of such description, do I think we may make a grave mistake by subjecting them to prolonged bed rest. They must be instructed as to their limitations, and how not to be a source of danger to others, but beyond this, attempts at intensive treatment may be pernicious and render their last state worse than their first.

In conclusion, I would again emphasize that we can lay down no hard and fast rules in the treatment of cavities; that we must study the problem of each patient from the standpoint not only of his disease but of every condition, hereditary or environmental, which makes him the particular individual he is. Guided by general principles of treatment a few of which, in this particular field of pulmonary cavities, as I have found them useful to myself, I have attempted to outline, we must help him find the best solution of his problem.

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HOW OUR EXPERIENCE IN THE LAST FEW YEARS HAS CHANGED OUR ATTITUDE TOWARD COLLAPSE THERAPY.

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(Read before the Nineteenth Annual Session of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, Dec. 7 to 9, 1933).

Last year, when I had the pleasure of addressing this society, I stated that I had nothing new to bring you in phthisiotherapy, unless it were a new enthusiasm. Again this year, I can only add to that enthusiasm for what can be accomplished in many advanced cases of pulmonary tuberculosis with the aid of collapse therapy.

As Clinical Director of one of the Government's large tuberculosis hospitals, I have had an opportunity of evaluating the results of the different forms of collapse therapy—not only the work in our own hospital and that of the other Government service hospitals, but the results of this work in various private institutions and clinics as well, for many veterans seek the advice and skill of the private clinicians and surgeons.

I do not, in any way, advocate the replacement of our usual rest and hygiene treatment by that of collapse therapy, nor should our enthusiasm for this form of treatment allow us to forget or neglect these principles, which alone have proved the one specific treatment for tuberculosis. Better that we should think of our modern collapse principles as aids to our rest treatment. Collapse therapy is rest treatment. All forms of collapse are splinting or rest of the diseased lung.

Most of the cases coming to us have far advanced disease; most of them have bilateral disease; most of them have large cavities in one or both lungs. I dare say that the majority of adult pulmonary tuberculosis cases coming to you who practice here in the Southwest, are in the advanced state. Practically all of the veterans coming to us, in Tucson, give a history of chronic tuberculosis of many years' standing—from two to fifteen years. Most of them have had long periods, sometimes years, of hospital or sanatorium treatment, under careful supervision, but in spite of prolonged rest treatment, these men come to us in an advanced progressive state of the disease, sick and discouraged. Most of them represent the failures of rest treatment alone.

What shall we do with these advanced cases? Shall we continue glibly to tell these discouraged sufferers to rest in bed from 18 to 24 hours a day, and consider our duty done when we sit passively in our chair and see that prescribed rest is enforced, remembering that most of these men have had years of such advice? A few years ago, in most tuberculosis hospitals, this was more or less the practice except for a few well-selected, strictly unilateral pneumothorax cases. The atmosphere of discouragement was not alone among the patients, but was reflected in the medical staff. That feeling of utter hopelessness: "Oh, what's the use. He is an advanced, bilateral case. Too bad that nothing can be done for him; too bad that he has so much disease in that opposite lung, which prohibits artificial pneumothorax; too bad the x-ray shows adhesions and thickened pleura. The best we can do is to make him comfortable."

Such an attitude did not lend itself to enthusiasm for the staff, nor to renewed hope for the patient. If I were asked to name the two most important assets in any tuberculosis institute, I would name an enthusiastic staff

and a group of patients in whom an enthusiastic staff had been able to instill a new hope and confidence.

That indifferent hopeless attitude toward the advanced case, of a few years ago, no longer exists in our hospital, but has been replaced by one of enthusiasm among patients and staff. What has accomplished this great change? I can answer in two words—Collapse Therapy.

I know that our entire staff is really enjoying its work. It is getting to be a regular game in which every member is taking an enthusiastic part. We take the attitude that, if the patient has played the same game of "chasing the cure" for years, in the same routine way, and has lost, then, if we still hold an ace that he has not played, we may win.

Every patient, on admission, is sent through a receiving ward for careful observation and diagnosis, including a careful history, physical examination, necessary laboratory tests, roentgenograms, temperature and pulse observations, special examinations as indicated. The receiving-ward physician is not only a clever diagnostician but a man blessed with unlimited enthusiasm. He studies every case for some possible form of collapse therapy. He starts the contact with the patient in regard to doing something definite for him.

An experienced roentgenologist studies every case carefully for possible collapse therapy and makes suggestions. When finally the patient has finished the observational and diagnostic data, the receiving-ward physician brings him before the entire medical staff, in weekly conference, where x-rays, clinical records, and physical examinations are discussed in view of some form of collapse therapy. These meetings are comprised of the manager, clinical director, surgeon and tuberculosis specialists, cardiologist, roentgenologist and pneumothorax operator. Everyone takes a part in these discussions and feels that his opinion is considered.

The patient feels that we are interested in him and that perhaps he will receive a "new deal." His face brightens, a new hope and confidence is born and, even though we fail to close that cavity with collapse therapy, we have gained a cooperation with that patient which in the end will be of much benefit.

After these cases are discussed in conference, the clinical director contacts these patients, if necessary, for a more detailed personal discussion of their cases, answers questions and discusses the proposed program. From time to time after these cases are conferenced, the physician in charge of the case again presents the case to the entire staff to show the results of the collapse therapy, whether the attempts have been a success or failure, and to seek advice for an additional or different program. This program has become so interesting that the new enthusiasm has caught the entire staff. We can scarcely wait to see what success has attended our efforts.

A canvass of our hospital, one day last week, showed 300 tuberculous patients under treatment. Of this number, 149, or approximately 50 per cent, had had, or were receiving, some form of collapse therapy. Of this 50 per cent, eighty were pneumothorax cases, fifty-three had phrenic nerve interruptions, ten were thoracoplastic, and five had received rib resections for various reasons; or, approximately: pneumothorax, 26 per cent; phrenectomy, 16.5 per cent; thoracoplastic, 3⅓ per cent. Aside from this, there are various combinations of the different forms of collapse.

When we consider that most of these men are far-advanced bilateral cases with large cavitations, that collapse therapy had not been performed in spite of years of progressive lesions, you can see how our attitude toward collapse therapy has changed.

A review of our cases shows that our program of collapse therapy has been justified. Many of our failures are represented by cases that were practically terminal when pneumothorax or phrenic nerve interruption was instituted, but our enthusiasm has allowed us to try something, even in these tragic cases. We feel that these patients have often had life prolonged and have been made more comfortable. Certainly, in these cases, the time for "watchful waiting" has passed.

We used to be quite proud of a slight gain in weight or a slight reduction of the area of rales, or other general improvements, in these advanced cavity cases; but experience has taught us that, unless we can close the cavity, these improvements mean little and our pa-

tient is doomed to a life of invalidism with life expectancy of only a few years, with complications, progression, amyloidosis and danger of pulmonary accidents.

While I do not have the time, here, to discuss the various indications for the various forms for collapse therapy, I want to say a few words concerning our present opinions as compared to those of a few years ago.

PNEUMOTHORAX

Not many years ago, when we considered a case for artificial pneumothorax, we demanded a strictly unilateral case. We were meticulous in our physical examination and study of roentgen films, to elicit the presence of any active disease in contralateral lung. Both physician and patient talked about the "extra load" that would be thrown on the contralateral lung. Both physician and patient were well schooled in the contra-indications for artificial pneumothorax. It has been our experience that, if we can close that large cavity in the one lung, the opposite lung, although diseased itself, often improves remarkably and even becomes entirely healed. We once believed that these lesions healed only by fibrosis. We now believe they are often entirely absorbed, somewhat analogous to the resolution seen in pneumonia.

We now give pneumothorax in bilateral disease with large or multiple cavitation in one lung and with considerable disease in the opposite lung. We even give artificial pneumothorax in large-cavity lungs with smaller cavity in contralateral lung. We give artificial pneumothorax in advanced bilateral disease, in severe uncontrollable pulmonary hemorrhage. We have found that often a partial collapse, especially if a selective collapse, works wonders in reducing the symptoms of a toxic progressive case.

Our experience has proved to us that many cases of advanced bilateral disease, with bilateral cavities, do remarkably well under bilateral artificial pneumothorax. The success which can be obtained in some of these cases —the sudden reduction of fever, lessened cough and expectoration, gain in appetite and weight, and improvement in general condition incident to the induction of pneumothorax in these advanced cases—is often quite dramatic. The improved mental attitude which accompanies this improvement is one of the most gratifying results of this therapy. When you can actually do something, and especially when that something is actually physical, you have a cheerful, hopeful, cooperative patient.

Of course there are many contra-indications for pneumothorax; however, I remember one time last winter, at a medical meeting, I was showing some rather striking results of artificial pneumothorax, including some bilateral pneumothorax cases in advanced bilateral disease. One doctor, in discussing the work, stated that after seeing these cases, he wondered if there were any contra-indications for pneumothorax.

PHRENICECTOMY

We started doing phrenicectomy in our hospital about six years ago. Like many others, we believed that it was indicated only in strictly unilateral disease and especially for basal lesions. Thus we found its indications quite limited. As time goes on and our experience broadens, we find that there is no end to the indications and the usefulness of this simple operation. Aside from artificial pneumothorax, we find its use the most helpful of any other measure in treating these advanced cases.

We have heard much about comparing the results of artificial pneumothorax with those of phrenic nerve interruption. We do not believe it is fair to compare these two forms of therapy. They are entirely different procedures. It is in the role of substitute for artificial pneumothorax that we have found phrenic nerve interruption of greatest value in treating the far-advanced case. Every case has its problems and must be worked out individually. We do both permanent and temporary interruption, depending on the indications.

The successes which have attended this operation, in many of our advanced cases, have been so striking that we are constantly finding increased indications for its use. We no longer use it only in basal lesions, but in apical cavitation as well, and the good results obtained are sufficient to warrant its use in disease in any part of the lung, especially any chronic fibrocavernous disease. We have found that it is useful in controlling hemorrhage where artificial pneumothorax has failed on

account of thick pleura, adhesions, and other reasons.

We used to try to measure the success of a proposed phrenicectomy by the amount of movement seen of diaphragm in fluoroscope. We anticipated good results if the diaphragm was freely movable and free of adhesions and a high rise of diaphragm could be expected. It is now our experience that it is often in the adhesion cases where the best results are obtained and we are becoming convinced that it is diaphragmatic adhesions which have prevented the necessary rest and healing of the diseased lung. It is in this class of cases that some of our most striking improvements have occurred. With the paralysis and rise of the diaphragm, the lung is allowed to relax, the cavities are often closed, the lung is placed at rest, cough is controlled, and immediate improvement occurs. We feel that this principle of lung relaxation, in these extensive adhesion cases, has been proved in some of our most recent experiences with phrenic nerve interruption as a supplement in unsuccessful pneumothorax cases.

In those cases of artificial pneumothorax where the cavity is prevented from closing on account of pleural adhesions, or where cavity is located near hilum and large stiff-walled bronchi, we have found frequently that by supplementing the pneumothorax with phrenic nerve interruption, the relaxation afforded allows closure of cavity and stops the troublesome symptoms. We believe the results of this operation should be thought of as relaxation therapy rather than collapse therapy.

THORACOPLASTY

In common with all the other clinics, we believe that the high mortality rate of thoracoplasty of a few years ago, can be accounted for by our enthusiasm to save desperate cases. The operation was too often one of last resort in highly toxic cases with no resistance, often with inadequate contralateral lung and weakened myocardium.

Unlike pneumothorax and phrenicectomy, the field of usefulness is limited and the indications become limited and definite. The percentage of our patients who can meet these rigid indications is small. We have found that the patient must be in good general condition, resistance good, and great care exercised to determine an adequate contralateral lung and an adequate myocardium. However, in those cases of unilateral fibrocaseous and fibrocavernous disease, in which paralysis of the diaphragm and artificial pneumothorax have failed, we feel that, if the patient meets the modern requirements of this operation, it should be performed by all means.

There is one type of case, however, in which thoracoplasty is demanded, in spite of severe illness with toxic symptoms, and that one definite indication is tuberculous empyema.

It is our opinion that, if thoracoplasty had no other use or indication, it would still be a God-send in this single condition. Tuberculous empyema has always constituted one of our most dreaded complications, treatment has been most discouraging and mortality high. Thoracoplasty now saves many of these otherwise hopeless cases.

SHOT BAGS

I find that the majority of patients coming to us have never tried or even heard of the use of shot bags. These bags are placed on the upper chest, over affected part of the lung, in gradually increasing weights. Different patients tolerate different weights. Some can wear them up to twelve or fifteen pounds. We have seen lesions improve and cavities close which otherwise have failed to close under the strictest bed rest. We sometimes wonder whether it is altogether the actual weight and immobilization afforded, which makes for the improvement, or whether it is the changed psychology of the patient which has much to do with his improvement. Here, again, we are doing something actually physical for our patient. He is taking absolute rest as we wish him to take it. He is doing something for himself. He has something definite to work for and to think about. We gain the fullest cooperation.

Yes, we are enthusiastic over the results that can be attained with the aid of the different forms of collapse therapy in the treatment of far-advanced pulmonary tuberculosis. Occasionally we meet a more conservative physician who still points out the failures of collapse therapy. We admit that there are many failures, but, in the type of cases which we are treating, we feel that, if we can have one suc-

cess and several failures, we have accomplished much and lost nothing.

We find that the doctor who is inclined to criticise our modern enthusiasm for collapse therapy, usually speaks in terms of cures. We have learned that, in the far-advanced progressive fibrocavernous case of long standing, the time for cure has usually passed. If we can give these patients even partial industrial, or even social, rehabilitation, we are gratified. We believe we can point to enough successes to warrant our enthusiasm.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.

Director, New Mexico State Bureau of Public Health.

MATERNAL MORTALITY

There are certain public-health problems which lie less in the field of scientific investigation than in the field of education and administration. Notable among these is the problem of maternal mortality. While, in the present century, infant mortality has been reduced from 170 per 1,000 live births to 58, and the death rate from tuberculosis has been cut to one-third, the deaths of women in childbirth occur with substantially the same frequency year after year.

A table published by the Metropolitan Life Insurance Company[1] gives the rates in selected countries for the years 1910 to 1932. The rates for England, Wales, and Ireland have been adjusted so as to make them comparable with those for the United States. It is believed that the rates given for Canada, Australia, New Zealand, and the Netherlands are comparable without adjustment. For the rest, the statisticians conclude that "even allowing for all these variations in classification, registration, and so forth, it is fairly certain that the maternal mortality rate in the United States is higher today than in any other civilized country."

Having been somewhat intimately associated with a committee of obstetricians and statisticians who studied the maternal mortality in the city of Denver during the year 1930, I am able to appreciate the serious difficulties to be encountered in obtaining accurate knowledge of the true primary cause of death in these cases. Interviews were made by a public-health nurse in every case and in very many cases the doctor in charge was also interviewed for us by a leading obstetrical specialist. Even so, one was forced to conclude that sometimes the true cause of death had not been elicited. I am the better able to appreciate at something like its real value the extremely careful and authoritative investigation made by the New York Academy of Medicine of puerperal deaths in New York City from 1930 to 1932.[2] Twice before has the Academy of Medicine attempted such a study and on each occasion has rejected the data obtained as being insufficiently accurate. The present study deserves to be thoroughly and dispassionately digested by every physician who is engaged in obstetrics. The reader will find that every one of 2,041 deaths was investigated within a week of its occurrence and that a jury of obstetricians, sitting once each month to determine the cause of death, has classified 1,343 of these deaths as preventable. Let the reader judge for himself on the evidence whether or not this is fair. Will he agree that "the profession must accept the responsibility for educating the lay public to a better understanding of the aims of obstetrics and the methods by which those aims may be realized. . . . A prospective mother must have further instruction in the necessity for prenatal care. . . . Operative delivery undertaken merely to alleviate pain or shorten labor involves increased risk for both mother and baby. The relative safety of delivery at home should be emphasized. . . . The situation in regard to midwives must be altered. More schools are needed for their training, including both women who have had previous training as nurses and those who have not. . . . The physician must be prepared to give the midwife unqualified cooperation. . . ."? It is perhaps unfair to take these somewhat challenging recommendations away from their context and the evidence that supports them. But the book itself may be bought or borrowed and the subject is one which deserves to be thrashed out in a symposium at the next meeting of the Medical and Surgical Association of the Southwest.

DIPHTHERIA MORTALITY

The high death rate from diphtheria in New Mexico during the year 1932 has given us an unenviable national reputation. It is in part accounted for by the fact that we have been passing through a diphtheria wave, as the following figures testify:

Table 1. Diphtheria Cases and Deaths in New Mexico 1929-1933.

Year	Total Cases Including Indians	Total Deaths Excluding Indians
1929	364	35
1930	387	51
1931	400	45
1932	673	84
1933	385	?

Efforts have been made in inverse proportion to the relative inadequacy of personnel to immunize susceptible children. The health officer of Dona Ana County has noticed that as the school children become immune a larger proportion of his cases are in older-age groups. This observation is borne out by a statistical tabulation.

Table 2. Relative incidence of diphtheria in pre-school and school age groups. 1929-1933. Percentage of all cases

	(a) Under 5 years		(b) 5-14 years	
	i. Dona Ana County	ii. State of N. M.	i. Dona Ana County	ii. State of N. M.
1929	14.8	15.3	69.1	54.2
1930	11.5	17.5	57.7	52.4
1931	11.5	16.9	52.6	51.8
1932	12.0	15.3	57.3	54.8
1933	11.9	15.1	40.5	50.0

These figures show that the school children, at least those in Dona Ana County, have been achieving immunity more rapidly than the rest of the population. This cannot be said for the pre-school group. And yet, if our colleagues in general practice would persistently urge that the babies be immunized at nine months of age, the percentage of cases occurring in the under-5 group would show a steady and persistent decline. Let us concentrate on the school children and you concentrate on the babies, without of course promising in either case to limit our activities to any age groups, and let us see who gets there first!

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DERMATOLOGICAL CLINIC

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(Presented at Medical and Surgical Association of of Southwest in El Paso, Texas, December 8, 1933).

CASE I. Psoriasis. A young man presented small coin-sized plaques over the body, of several years duration, covered with silvery scales. An eruption of this type might be taken for a psoriasiform secondary syphilid. The absence of other symptoms, the chronicity, and the character of the scales justify a diagnosis of psoriasis. In this case an ointment 5 per cent salicylic acid and 5 per cent ammoniated mercury, was prescribed. The value of ultraviolet therapy was stressed. Autohemotherapy was suggested to inactivate the disease and stop spreading. Arsenic is contra-indicated in cases which show a tendency to spread.

CASE II. Alopecia Areata. This patient, a Mexican boy, age 18, presented two bald spots on the scalp, of several weeks' duration. Under local stimulating applications, the hair was beginning to return. These cases are usually associated with some nervous disturbances such as worry or shock. In this boy's case there was a history of emotional upset associated with an unfortunate love affair.

CASE III. Ringworm of the Scalp. A girl, 7 years old, presented numerous partly bald areas over the scalp, with broken hairs. The organism cultured was the microsporon lanosum which is the organism usually found in this section of the country. These cases are usually treated by epilation with x-ray. Where there are only a few lesions, they can be cured by epilating the hair with forceps and applying antiseptics, such as iodine.

CASE IV. Multiple Gummata of the Left Forearm. These lesions, occuring in a woman, age 35, on account of a linear distribution presented a striking resemblance to sporotrichosis. Frequent examinations for fungi were negative, the Wassermann blood test was positive, and the lesions were rapidly responding to antisyphilitic treatment.

CASE V. Granuloma Annulare. A negro woman, age about 30, presented numerous circular lesions on the arms and neck, varying from one-half to 1½ inches in diameter. The borders were slightly raised, with a tendency to clear in the center. These lesions had been present for several months. There was no particular itching nor other subjective symptom. This condition is probably a tuberculid. On examinatiion the patient was found to have pulmonary tuberculosis. The skin condition is much benefited by x-ray. This patient when presented was receiving gold and sodium thiosulphate with benefit.

CASE VI. Macular Secondary Syphilis. This patient had not received any treatment and presented a typical but faint early syphilid.

CASE VII. Papular Secondary Syphilis and Erythema Multiforme. This patient was shown to

distinguish the two eruptions. The erythema multiforme appeared on the hands during the course of treatment of the syphilis. On account of the possibility of treatment having caused the toxic eruption, all treatment was suspended for a week, during which time the eruption disappeared. A papular syphilid is prone to attack the palms and soles, whereas erythema multiforme is likely to be more noticeable on the extensor surfaces.

CASE VIII. Lupus Erythematosus. A Mexican woman, about 30 years old, presented an erythematous plaque of several years duration on the end of the nose. There were considerable atrophy and prominent sebaceous follicles, both of which are characteristic of this disease. This patient was being treated with bismuth locally and by intramuscular injections and was responding to treatment. Lupus erythematosus is a dangerous disease and the treatment should be under expert supervision. It is of toxic origin and all foci of infection should be disposed of if possible. The possibility of a serious exacerbation following removal of foci should be kept in mind. Gold and sodium thiosulphate is a useful drug in these cases, but it is apparently more dangerous than bismuth.

A CASE FOR DIAGNOSIS

Discussions by Drs. L. B. Baldwin, R. J. Stroud and Orville H. Brown, Phoenix, Ariz.

CASE HISTORY

E. G., a white male of 64 years of age. entered hospital December 29, 1933, complaining of indigestion for six months and loss of weight for six weeks. The working diagnosis upon admission was carcinoma, probably of the duodenum following an ulcer.

As a young man, he had symptoms which were considered indicative of an ulcer of the stomach or duodenum. He began to have pain in the stomach last July or August and this has become worse. The pain has been constant, relieved some by the taking of magnesia or soda, and by a milk diet. He has lost 13 pounds in the last six weeks and the skin has been dry. The pain has been in the epigastrium and to the right extending through into the back. Recently, there has been some nausea and vomiting.

P. E. Pupils normal; teeth gone; tonsils present and negative; moderate fairly firm enlargement of left lobe of thyroid which has been present without change for about 40 years. Lungs negative. Heart negative. The liver is not enlarged and there is an ill-defined mass below the costal arch between the midline and extending 20 inches to the right of the midline, extending down as low as the umbilicus which is very tender. The abdomen is otherwise negative. Genito-urinary negative; the prostate is not enlarged. Skin, dry, but otherwise normal. Bones and joints normal. Neuro-muscular normal.

Laboratory: Gastro-intestinal x-ray; no evidence of lesion in the stomach which emptied in six hours; pyloric canal spastic, but otherwise negative; the duodenal cap is deformed in shape and shows filling defects. X-ray diagnosis of post-pyloric ulcer with scar deformity of the cap. X-ray examination of the gallbladder following administration of dye was not conclusive; the shadow was faint, suggesting a functional disability of the gallbladder.

Gastric analysis: Free HC1 56; total aciditiy 78; occult blood positive; miscroscopic examination negative.

Urine: Amber, cloudy, acid, trace of albumin, no sugar, no casts, 3-4 pus cells, and occasional blood cell.

Blood: Hemoglobin 80; leukocytes 9,400; neutrophilic leukocytes 52; lymphocytes 48.

Course: T. 98-100; P. 70-128; R. 16-32.

On December 30, an exploratory laparotomy was performed under ether anesthesia at which the stomach and duodenum were found to be free ulcer or any other gross lesion. There were some old adhesions between the gallbladder and duodenum, and the gallbladder was enlarged, but there was no obstruction of the biliary ducts. The liver had over its surface numerous small, raised, firm, yellowish red areas, one of which was excised and sent to the laboratory for microscopic examination. The pancreas was examined, but no distinct enlargement was found although there were some enlarged lymph glands above it. The spleen was negative, as were both kidneys and adrenals. The small and large intestine were grossly normal.

On the sixth post-operative day there was a small hemorrhage from the upper end of the wound requiring no intervention. He was discharged on January 9, and sent home by ambulance. The course continued downhill, and death occurred on January 13, 1934. An autopsy was performed.

DR. L. B. BALDWIN

It is not often that one is given a clinical problem with all but the actual diagnosis presented on a silver platter and yet, in spite of the fact that an exploratory laparotomy was done in this patient and that a description is given of the surgical findings, there still remains a great deal to be explained.

The working diagnosis upon admission seems entirely reasonable in view of the age of the patient, the history of indigestion and loss of weight, and the apparent mass in the epigastrium discovered upon physical examination. But the x-rays seem to rule out carcinoma of the stomach as a reasonable diagnosis, because they seem to show a normal stomach but with scarring and deformity of the cap and possible disability of the gallbladder. Carcinoma of the duodenum is extremely rare and almost never occurs with or complicates duodenal ulcer.

At this point, it might readily have been assumed that the patient had a chronic duodenal ulcer with so much digestive discomfort, vomiting and pain that loss of weight and cachexia were to be expected. There is also a history suggesting ulcer in early manhood to add weight to this diagnosis.

So far the consultants all agree, I am sure, and nodding their heads wisely point to the high stomach acidity as added evidence for duodenal ulcer, No doubt the usual ulcer regime had been previously prescribed and in view of the rapid downhill course, an exploratory laparotomy with a gastro-enterostomy in mind was considered inevitable. It is easy to picture the surprise on the face of the surgeon when he looks expectantly into peritoneal cavity and finds no ulcer of the stomach and a normal intestinal tract throughout. It is reasonable to assume that the incision was enlarged in order that a better look might be taken. Then the liver is viewed and is found peppered with numerous small, firm, raised, yellowish-red areas, and the surgeon might be pardoned if he exclaimed, "What the devil is this?" In spite of having had considerable experience with carcinoma of the liver he has never seen a condition exactly like this one, and he subsequently waits anxiously for the

pathologist's verdict. He then possibly thinks aloud saying, "Tuberculosis? No, tubercles do not have this appearance and moreover there is no evidence of a widespread tuberculous process. The masses do not look or feel like abscesses and there has not been a febrile reaction." Still puzzled he goes on to say, "But why did the x-ray show a deformity of the duodenum?" And at the same time plunging his hand toward the gallbladder he lifts it into view and finds that it is enlarged and adherent to the duodenum. "Aha," he again exclaims, "chronic cholecystitis with traction so as to cause an apparent deformity of a neighboring viscus, something always to be thought of when interpreting gastro-intestinal x-rays." Still looking and pawing about he is in some doubt about the pancreas, in spite of the fact that it is not apparently enlarged, because there are enlarged lymph nodes above it. Everything else appears to be normal. Having decided to his complete satisfaction that there is nothing to be done about it, he sews the patient up, retires to the dressing room and has an interesting time discussing the various possibilities before the pathological report is available.

From the information at hand, it seems likely that we are dealing with malignant disease of the liver. Although no blood Wassermann was taken, syphilis can be ruled out on the gross appearance of the liver. In this condition, the organ is generally enlarged and although there may be numerous gummata, resembling carcinoma or sarcoma, they usually vary greatly in size and are accompanied by considerable scar tissue, and are not more or less uniform as described in this case. The spleen is often greatly enlarged and almost never normal in size, as found in this patient.

If the condition represents malignancy, the next question to be decided is whether the liver is primarily or secondarily involved. Primary carcinoma of the liver is rare, and primary sarcoma which is even rarer is usually a massive growth, while secondary growths are relatively common. Carcinomas often originate in the stomach, pancreas, gallbladder, or prostate. Sarcomas are usually due to metastases from primary growths in bones, adrenals, mediastinum, and in the case of melanosarcoma from the eye and the skin. This patient is rather old to have sarcoma and moreover from the record there is no evidence of a primary growth in the common sites. On the other hand, it cannot be entirely ruled out because a small growth readily overlooked may metastasize early and may sometimes start into life.

The diagnosis probably rests between primary or secondary carcinoma of the liver. In the latter case, an original focus was not discovered at time of operation. It is extremely unlikely that an involved pancreas could have been missed. For in this organ the growth is usually stony hard and contrasts markedly with normal, rather soft pancreatic tissue. From this region metastases usually occur late. Here again, however, the rare exception must be thought of, particularly in view of the enlarged lymph nodes discovered above the pancreas. The surgeon no doubt had this thought in mind and was unable to come to a definite decision.

Carcinoma of the gallbladder must always be thought of, particularly as it is a relatively common disease. It usually starts in the fundus projecting from the mucous surface into the interior of the gallbladder. But surely, simple palpations should reveal the presence of the gallbladder tumor as there is thickening of the wall which is very firm to the touch, and often stony hard. It cannot be denied however, that there was some disease of the gallbladder since there were adhesions binding it to the doudenum. The high gastric acidity also suggests possible gallbladder pathology.

The kidneys felt normal and although a trace of albumin was found in the urine, there is nothing definite to suggest renal disease.

The prostate was also not incriminated.

In spite of its rarity, the diagnosis seems to narrow itself down to primary carcinoma of the liver.

Malignant disease of the thyroid always has to be thought of. Carcinoma may metastasize early without any local signs, except the presence of an adenoma. On the other hand, this patient has had an adenoma for 40 years which had increased in size and consequently this diagnosis is extremely improbable.

The thorax as a primary source of neoplasm has been pretty definitely ruled out by the negative history and physical examination.

The history is quite characteristic of malignant disease of the liver. There was a vague preliminary period of indigestion, with pain in the stomach and right upper abdomen. Latterly there was loss of weight, but not usual anemia. It is interesting that there was no enlargement of the liver, because in malignancy the liver is usually greatly enlarged. This makes one suspicious of a primary growth elsewhere, even though none could be found upon exploration, particularly as in at least one-third of the cases the primary growth is latent. Primary growths are often single and cause uniform enlargement of part of the liver, and they grow more rapidly.

My diagnosis is:

(1) Secondary carcinoma of the liver, arising from the gallbladder or possibly the pancreas.

(2) Primary carcinoma of the liver.
Chronic cholecystitis,
Possible chronic nephritis.

DR. R. J. STROUD

The case as given presents a practically negative examination and history except for the right upper quadrant of the abdomen. The examinations given are mostly of a routine nature and only special examinations relating to that region were done.

The working diagnosis is carcinoma probably of the duodenum and described also as following ulcer, although some will dispute the fact of ulcer and cancer being related.

The patient himself is an old man with a description of pain of the stomach which has become worse for four months. Associated with this pain is nausea and vomiting recently. The pain is constant, radiating to the back from the right hypochondrium and epigastrium. He had stomach symptoms as a young man attributed to ulcer of the stomach or duodenum. The present pain was relieved by alkalis and milk diet. Dry skin and a loss of 15 pounds in 6 weeks are described.

X-ray diagnosis was that of a post pyloric ulcer with scar deformity of the cap, spastic pylorus and a sluggish gall-bladder.

The blood is not remarkable. Leukocytes are not increased above normal although the lymphocytes are relatively increased.

Operation revealed a liver with numerous small raised areas, firm and yellowish red over the surface. Some lymph glands were enlarged above the pancreas. The gallbladder was enlarged although probably as much as the mass described before operation. The liver is not described as enlarged and the mass thought to be there before operaton was not spoken of when the abdomen was explored. Neither do we know just how many of the nodules were present over the liver surface, their size in any exactness nor whether they were more or less confluent or discrete.

To sum, we must find a condition serous enough to cause the death of a patient, after six months of stomach pain, that looks like a stomach or duodenal ulcer by x-ray diagnosis, that loses a patient weight

in six weeks, that is an old man's disease, and in which every finding is negative as a cause of death except those found at exploration, which rules out everything except a liver whose size at operation is not described and with some enlargement of glands above the pancreas, and with that organ not distinctly enlarged to palpation. The only other clue is that the lymphocytes are relatively increased. A tender mass described before operation is left to be guessed at by the diagnostician. No jaundice is described.

To begin, I take it that the liver was not enlarged upwards and that the mass if present at operaton, was the liver. Just what could cause the condition of the liver and the lymph glands to the right and above seems to be the only basis upon which to base an opinion. We have the choice of (1) new growth; (2) tuberculosis; (3) syphilis; (4) some other condition, rare if found in this way, such as actinomycosis.

To take up the least likely first, cases of actinomycosis generally occur in younger people, also it is usually manifested elsewhere in the body and the stomach, if the primary source should have shown changes commensurate with that disease if it were a primary focus. It may begin as a stomach ulcer and generally does and gives all of the same symptoms. The liver movement is secondary and can have just such a picture, if the process is deep with smaller manifestations near the surface. It must be thought of in any case.

Syphilis may have manifested itself in this way. No Wassermann was taken and the patient is evidently free from other stigmata, or this would have been done. If a syphilitic ulcer of the stomach had been present it would have shown as an induration or a gumma at operation. However, cases of syphilis can simulate any disease and the stomach could have given all of those symptoms and these small masses could well have been masses of gummata or syphilides. The pain in the stomach could have been a syphilitic one and many an operation has been done on a syphilitic to the chagrin of the surgeon. Syphilides could have been placed in the liver just as was seen at the time of operation. It can be ruled out in that other manifestations should have been present. The neuro-muscular examinations were normal as well as the eyes. So we put syphilis down as only a possibility. It usually does not kill like this.

Tuberculosis of the liver is generally secondary to some other disease, and usually the disease is massive in other places before the liver is invaded, except in those cases of miliary tuberculosis where all organs are invaded. Primary tuberculosis is a a rare disease, but can be present. It seems that he would have run a far more febrile course if it had been tuberculosis, and yet the thing stimulates tubercles from the description of the surface of the liver. The loss of weight, the high lymphocyte count and all of the picture looks like a tuberculosis, including the loss of weight, except that we would look for tuberculosis in some other organ also, and this was absent.

This leaves us with the greater possibilities of new growths. Carcinoma of the liver is generally secondary to the disease in some other organ, generally the stomach or gallbladder. Taking the slightly febrile course together with loss of weight and with dry skin coupled with the age of the patient it is far more probable than any other causes above mentioned. The course seems a bit too quick and yet there could have been a primary lymph gland carcinoma which worked on the general system as a toxic thing and suddenly it overcomes him when the liver was well impregnated with the cancer nests. Even if the stomach and intestines are described as grossly normal, a small pediculated carcinoma could have been present in the upper part of the duodenum and the spread could have been from there. Such a condition would have given the false x-ray interpretation. About the cancer death coming on so fast, it is very possible that an operation at this stage would have mercifully ended the thing, as it generally does in these cases. When operation intervenes the course of cancer is thrown out of balance and generally a speedy exit comes, when, if left alone, the thing would have prolonged about the usual time. Carcinoma is never ruled out because of the findings. Fifty per cent of carcinomas do show more or less jaundice. This case does not.

The other possibility of new growth is sarcoma. Against the thing is the fact that it is a disease of younger people, although the last case I saw from a primary lymphosarcoma of abdominal glands was in a man of 64. Sarcoma is no respector of time or place, and just as we are thinking of carcinoma as quite a prevalent disease below the age of 45, the older dead line, so we must make up our minds that sarcoma is a disease of many older people. The fact of the glandular enlargement above the pancreas means a beginning focus and the liver is very likely to be secondary to this, and the surface of the liver would give just this appearance, with only a moderate enlargement of the liver as compared to carcinoma in general. I am more inclined to think of this as a sarcoma, of the original lymph sarcomatous type than a carcinoma. The fact of only one organ and lymph glands being in the picture makes me think more of the possibility of a sarcoma than any other thing mentioned, and it would only have to be differentiated from the first cousin, Hodgkin's disease if this premise is correct. Operations hasten the exit as in the other, and the loss of weight is just as would be expected, together with the slight febrile course, lack of higher white count than normal and the lymphocytes out of proportion. The stomach symptoms could be accounted for by pressure on the cap or adhesions to the same from the glands and throw the x-ray man off to this extent. The pain going through the back seems more like some pressure greater than usual in that location. Growing lymph glands with sarcoma could supply this pain.

I did not mention hepatic cirrhosis as a possibility, for the liver was not enlarged in all directions and the surface is better described as a hob nail liver than one in which definite areas stand discretely up as different tissue from the rest microscopically. If it should prove to be cirrhosis I shall be much surprised from the description of the light febrility and rapid demise.

I can visualize the possibility of the lymp gland enlargement being a primary abdominal focus of Hodgkin's disease and that other deeper glands of the mesentery could be enlarged and not seen at the time of operation. The liver could well take up the burden of the process and death result in the same way, without the usual enlargement of other glands. I wonder what the innocent left lobe of the thyroid really means? It may not have changed of itself in thirty years, but the thing was never really ruled out of things. It could be the key to any picture of lymphoid new growth.

My final diagnosis is that of a lymphosarcoma, either a Hodgkin's type or not, depending on the pathologist's report. Everything else but carcinoma is only a possibility, but fungi like actinomyces must be thought of. Carcinoma is never ruled out in any new growth without the pathologist.

DR. ORVILLE H. BROWN

Based upon the facts of age (64), indigestion for a period of six months, with previous history sup-

(Continued on page 104)

Southwestern Medicine

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THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST.

The matter of reorganizing the Southwest organization is in the hands of a special committee composed of the president (Dr. W. A. Gekler), president-elect (Dr. David M. Davis), and board of trustees (Drs. E. Payne Palmer, P. G. Cornish and F. D. Vickers). This journal has not yet had intimation of their activities, but we know their program will include the securing of a membership of five hundred. The 1934 dues were set back to $3.00, to encourage this membership campaign.

As soon as arrangements can be made, a special edition of this journal will be published, devoted to the medical profession of northern Mexico. This will be partly in Spanish. A number of contributions from hospitals in Mexico have been promised and some already submitted.

This committee has the task of drafting a new constitution, of formulating the type of annual meeting, of carrying on the membership campaign, and of forwarding the purposes and program of the Association in every possible manner. Save them trouble by sending your application for membership in the Association, before being asked.

THE ANNUAL NEW MEXICO MEETING

This meeting will be July 19, 20 and 21, at Las Vegas and NOT in May, as we mistakenly stated in last month's journal. Lacking definite information we assumed it would be in the usual month (May).

Dr. Gellenthien of Valmora, Chairman of the Program Committee, writes that they chose the later date in order to allow men from the warmer parts of the state to combine a vacation in the cooler altitudes with the attendance at the meeting. Their program is already well under way, and tentative list of speakers will be announced next month. Among them will be Dr. C. W. Mayo, who will read a paper on Appendicitis; Dr. L. A. Buie, who will read a paper on rectal fistula and hemorrhoids; and Dr. Frank B. Kelly, of Chicago, who will have a paper on Pneumonia. Scientific exhibits will be a feature of this meeting, and a public health meeting will be held. Watch for complete program in May or June.

THE ARIZONA STATE ASSOCIATION MEETING.

The Arizona State Medical Association will be held later this year than usual. It will be in Prescott and the dates are June 7, 8 and 9. Since the American Medical Association meeting in Cleveland starts on June 11th, it is probably not expected that doctors will attend both meetings. We are informed that Dr. Fitzgerald, Chairman of the Program Committee, has the program well under way with an abundance of high class material. More detailed announcement will be made next month. Of some things we can be certain; no more delightful place exists than Prescott in June, and no more cordial group of doctors can be found anywhere than the Yavapai County Medical Society.

THE SOUTHWEST

For many years, the medical profession within the geographical area which includes New Mexico, western Texas and Arizona, have been endeavoring to establish that district as a unit for organization of medical activities. Another forward step was taken when the American College of Surgeons definitely recognized the "Southwest District" and elected officers of that unit, at the recent meeting held in Phoenix. The district corresponds to that covered by the Medical & Surgical Association of the Southwest.

The Southwest District Meeting of the College of Surgeons, this year, was organized somewhat hastily and defensively, when it was learned that Arizona had been included in the Southern California district, at THEIR (California's) request. The Fellows of the College in Arizona had not been consulted, and when they protested, the Southwest District meeting was arranged. Although insufficient notice was given to secure much attendance from El Paso or New Mexico, the recognition of this geographical area by the College is a long step toward the establishment of a medical autonomy in the Southwest.

The meeting just held was a very excellent one, with eminent surgeons present to assist in clinics, scientific meetings and hospital conferences. The two outstanding features were the Cancer Clinic held by Dr. Greenough, and the Public Health meeting on Friday evening, March 16. This latter meeting was held at the sand in attendance. We hope to give a de- High School auditorium with about two thou- tail'ed record of this conference in next month's journal

---

SUGGESTED RELIEF FOR PROFESSIONAL MEN.

We have received from The Lawyers Club of Los Angeles the resolutions quoted below:

Whereas, the Government of the United States has been extending credit to many classes of the community which have been unable to secure loans or extensions in the ordinary course of business;

Whereas, no such aid has been extended to professional men;

Whereas, professional men, notably lawyers and doctors, must render service when required regardless of the ability of the client or patient to pay;

Whereas, most members of the legal and medical professions have rendered such service during the years of economic depression and now have upon their books charges for such service against clients and patients who are willing to pay but who are unable to secure funds, despite the ownership of property;

Whereas, this condition has resulted in placing said professional men in serious financial straits, in that they must pay in money for certain of their facilities and the support of their families while unable to collect sufficient sums in money from their debtors; and

Whereas, the debtors of the professional men, in the aggregate, consist of the most responsible portion of the community, whose credit in the aggregate is the foundation of all local credit;

Be It Resolved by The Lawyers Club of Los Angeles that the Congress and the President be importuned to act promptly for the relief of such professional men by setting up a system whereby the debtors of professional men, at least lawyers and doctors, may arrange long credit terms upon obligations that will be discounted at a low rate of interest by a Federal agency, thus releasing to the professional men amounts of cash in return for the credits which are now but frozen assets: and

Be It Further Resolved that copies of the resolution be dispatched to the California delegation in Congress, the President of the United States and that the commitee take such other steps to foster the spirit of the resolution as it or the Board of Governors may be advised.

This is brought to the attention of medical organizations in the Southwest with the suggestion that they give the matter serious attention.

DONTS

W. R. JAMIESON, M. D.
El Paso, Texas

Don't promise your gonorrheal patient that he will be cured in a certain time. There is no royal road to the cure of gonorrhea; the crowned head and the deadhead suffer equally.

Don't forget to examine the prostate when you are seeking foci of infection.

Don't forget to ask your syphilitic patient if his skin itched after the previous injection of salvarsan; a positive answer may avert an exfoliative dermatitis.

Don't treat the sexual neurasthenic as a nuisance. His troubles are very real to him and shou'd excite your sympathy and understanding. Moreover, he usually has the means to pay for your advice.

NEWS ITEM

If a sufficient number of candidates are interested, the American Board of Ophthalmology will conduct an examination at Butte, Montana, July 18, 1934, at the time of the meeting of the Pacific Coast Oto-Ophthalmological Society.

Applicants for the certificate should immediately communicate with the Secretary, Dr. Wm. H. Wilder, 122 S. Michigan Ave, Chicago, Ill.

A CASE FOR DIAGNOSIS

(Continued from page 101)

porting the diagnosis of ulcer, a loss of 13 pounds in six weeks, and a suspected mass in right upper quadrant, the existence of carcinoma of the duodenum would seem to be a possibility if not a probability. Carcinomas of the duodenum, however, are rare. The statistics of Geiser indicate that about four per cent of intestinal carcinomata occur in the duodenum. He collected data upon 71 cases; 11 were in first portion, 51 in second and nine in the third. Up to 1922 only five cases of duodenal carcinoma had been reported from the Mayo Clinic. Ewing holds that carcinoma of the duodenum may develop upon an ulcer base; others develop at the ampulla of Vater and in the distal portion of the duodenum. Cole on the other hand doubts that ulcers ever become cancerous Evarts Graham says the gross anatomy and symptoms of a cancer upon a duodenal ulcer are similar to those from a pyloric cancer. Stenosis and adhesions are common Metastases are usually early and widespread. When the cancer is in the second portion it is about the ampulla of Vater and jaundice usually is early and constant, although it may be absent. Dilation of the biliary and pancreatic ducts usually occurs.

Carcinoma of the distal portion of the duodenum is extremely rare; it produces strictures with dilation of the upper duodenum and stomach and vomiting of large quantities of bile, with gastric symptoms. The operative findings undoubtedly rule out the possibility of a primary cancer of the upper right qudrant. The small areas or nodules found in the liver must be explained on other basis.

With the history of symptoms suggesting ulcer of the stomach or duodenum and the x-ray evidence of filling defects, and the deformity of the cap and the operative findings of adhesions about the duodenum it seems that the former diagnosis of duodenal ulcer must have been correct.

The lymph nodes above the pancreas drain the duodenum and gallbladder as well as the pancreas and their enlargement could be accounted for by the old inflammatory process which had affected the duodenum. The enlarged gallbladder suggests infection which might have been recent and such infection might enlarge the lymph nodes in this region or whatever caused the nodules in the liver might have been responsible. The mass which was thought to have been palpated might have been the enlarged gallbladder or possibly the adhesions gave the impression of a mass. The small firm raised yellowish-red areas observed in the liver must be metastases—inflammatory or new growth, probably from a source outside the abdomen as a thorough search of the entire abdomen was evidently made at the time of the operation. The description of the areas suggests no special etiology feature to me.

A careful reading of the history gives only the suggestion of the thyroid as a possible source of a new growth but there has been no apparent change in it during 40 years of its existence.

There is nothing in the record to suggest infection. The temperature, it is true, is slightly elevated. The leukocyte count is essentially negative however, except for an increase of lymphocytes and a reduction of neutrophiles. This might suggest or at least be in accord with expectations in malignancy, and in tuberculosis and other conditions apparently not present. There is no reason to even suspect tuberculosis so far as I can see, as tubercles are fairly characteristic in appearance; evidently the nodules seen in the liver did not suggest tubercles.

With prostate and genito-urinary tract negative it seems necessary to return to a consideration of the thyroid. Tumors of the thyroid behave in a peculiar manner at times. Bartlett and also Boyd say cancer of the thyroid is more common than ordinarily supposed.

Eberts, Fitzgerald and Silver hold that malignancy arises generally in previously existing and apparently benign tumors of the thyroid more commonly on the right than the left. An encapsulated adenoma may have extensive malignant changes before the capsule has become involved. These authors discuss five types of malignant tumor of the thyroid. Malignant adenoma, carcinoma, epithelioma, endothelioma, and sarcoma. They divide the malignant adenoma into two divisions: The adult type and the papillomatous type. They divide the carcinoma into simple, medullary and scirrhus.

Pemberton and Fricke recognize four main types of malignancy of the thyroid: papillary, adenocarcinoma, adenocarcinoma in adenoma, diffuse adenocarcinoma and spindle-cell resembling sarcoma.

Allen Graham's classification is more simple and serves all practical purposes, says Evarts Graham in his Surgical Diagnosis. He recognizes a scirrhus carcinoma which is similar to these tumors elsewhere; he also has the papillary adenocarcinomata and malignant adenomata. The diagnosis, classification, and determination of malignancy, according to Allen Graham of sirrhus and the papilliferous adenocarcinomata rests upon the usual pathological standards.

The malignant adenomata develop from benign adenomata and the question is the determination of what constitutes malignancy. Malignant adenomata are multiple type tumors, according to Allen Graham, and invariably invade the blood vessels. He says that whenever the cells are found in blood vessels the diagnosis of carcinoma is definite. When these growths arise in adenomata which have no capsules they follow the tissue plans and spaces. reaching the lymphatics and hence metastasize mainly to the lymph nodes draining the thyroid. As long as the growth stays within the capsules there is no invasion of the lymphatics and hence metatasista kes places soley by the blood stream. The growth within the blood vessels, usually veins, is toward the heart, and cases of tumor thrombosis of the right auricle have been reported. The cancer tissue has been found not infrequently in the thyroid and jugular veins and even in the superior vena cava and innominate vein. Parts of the growths frequently become separated and are deposited in distant parts of the body. In this connection I would emphasize the point made by Allen Graham that, in encapsulated tumors without other evidence of malignancy and the microscopic appearance is not sufficient for a decision, the findings of an invasion of blood vessels by the cells will make a diagnosis.

Howard M. Clue says that a firmness and fixation of the thyroid mass and a recent increase in its size should make one suspect a malignancy.

W. W. Mover writes that it is well recognized clinically that an inconspicuous or latent thyroid growth may produce extensive remote metastases the source of which may be unsuspected. He reported two cases in which the general carcinomatosis condition was recognized long before it was even suspected that the thyroids were the origin of the growths. In one case it seemed advisable to remove the thyroid because of toxic symptoms from it. Routine examination revealed the presence of malignant adenomata. Then it was concluded that this was the cause of the metastases previously discovered. In the other case a part of the metastatic tissue obtained by a laminectomy, for a supposed cord tumor, when examined showed tissue resembling thyroid.

Ewing gives the following statistics on the fre-

quency of the invasion of the variolus organs by metastases from thyroid malignancies: Of 238 cases, the lungs were affected in 129, the bones in 66, the liver in 36, the kidneys in 20, pleura in 16, brain in 12, and other regions in 13.

My diagnosis in this case is malignant adenoma of the thyroid with metastases; healed doudenal ulcer; functionally diseased gallbladder.

Autopsy Report
DR. H. P. MILLS

Subject is a poorly developed white male, presenting recent operative scar in right upper quadrant and a mass in the neck which is round, smooth and firm.

On opening the abdomen there was a small amount of fat and a small amount of fluid in the abdomen. Intestines were collapsed, stomach dilated. Liver was found to project slightly below the costal margin and was seen to be studded with round, whitish, elevated areas which varied in size from several millimeters to several centimeters. The masses were discrete, and were evidently metastases from some distant focus. They were found throughout the substance of the liver.

The stomach and intestinal tract were apparently normal. No ulcer of the stomach was found.

The pancreas was found to be involved in new growth; the distal one-third was enlarged, indurated and nodular fairly well demarkated from the remainder of the pancreas.

The kidneys showed several deposits of metastatic growth in the cortex. These were small, the largest being less than a cm. in diameter. The lungs are expanded, normal amount of pleural fluid, there is some reddening and firmness in the posterior portion of each lung, and on the surface of cut section the lung presents very numerous areas of new growth and there was marked enlargement of mediastinal lymph nodes.

The thyroid was removed en masse and the left lobe was found to be large, firm, rounded and well encapsulated. On cut section in the left lateral lobe there is a new growth; about 2½ cm. in diameter of grayish color with soft degenerated material in center. There is considerable of the normal thyroid tissue preserved and the tumor does not seem to infiltrate all the tissue of the gland. The tissues of the neck are not infiltrated by the new growth.

The heart findings showed no gross lesions.

The urinary bladder was empty and the prostate not enlarged; gross section showing no evidence of new growth.

Pathological diagnosis: Primary carcinoma of the thyroid gland. Metastases to lungs, mediastinum, liver, kidneys, and pancreas.

EL PASO COUNTY MEDICAL SOCIETY

February 13, 1934

(Reported by Dr. Leslie M. Smith, Secretary)

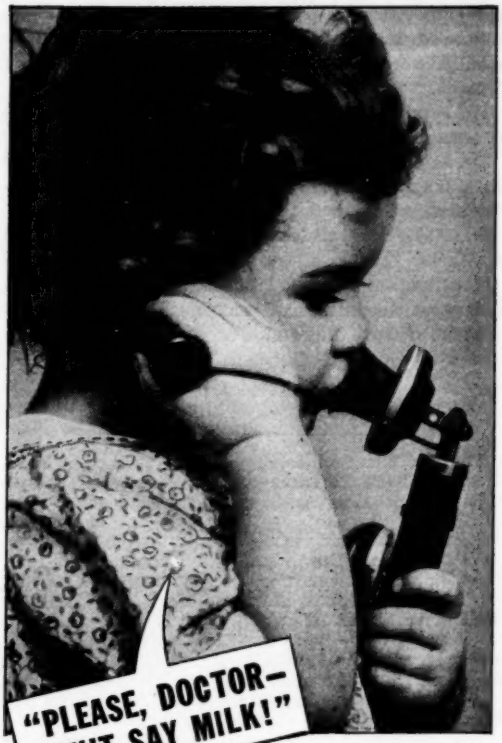
Case of Intracapsular Fracture of the Hip: F. C. Goodwin, M. D., El Paso, Texas.

Classification and Treatment of Arthritis: N. D. Buie, M. D., S. S. Munger, M. D., Marlin, Texas.

The El Paso County Medical Society met February 13, 1934, at Hotel Hussmann, Dr. E. W. Rheinheimer, presiding.

A letter was read from the Arizona State Medical Association requesting that the El Paso County Society send a fraternal delegate to their meeting in Prescott, June 7th, 8th, and 9th.

Dr. Raymond P. Hughes of Anthony was elected



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to membership. The application of Doctors Y. M. Milam, M. L. Alexander, and G. S. Brooks for membership were read and referred to the Board of Censors.

Dr. Frank C. Goodwin was elected delegate to the Arizona State Medical Association meeting.

Dr. F. C. Goodwin presented a case of intracapsular fracture of the hip treated with the Smith-Peterson pin.

Dr. N. D. Buie, assisted by Dr. S. S. Munger, both of Marlin, Texas, addressed the society on the "Classification of and Treatment of Arthritis," illustrating the talk with lantern slides. The classification of Cecil was followed. The paper was discussed by Dr. F. C. Goodwin and in closing by Dr. Buie.

The meeting adjourned at 10 p. m.

The Nichols Sanatorium. — In Savannah, Mo. there has been for some years an institution known as the Dr. Nichols Sanatorium for Cancer. It was founded by one Perry Nichols who held a diploma from the University of the South Medical Department, Sewanee, Tenn., 1901, and who died in 1925. The Nichols concern, which, of course, uses the escharotic treatment, is the subject of an article by the Bureau of Investigation of the American Medical Association. According to the statement that has been made for many years, both before Nichols died and since, this has been vaguely described as: " . . . a double compound, about four times the strength of chloride of zinc plaster, or the arsenical or Marsden's paste, and acts with decidedly less pain." In fifty-five cases of alleged cures of cancer by the Nichols Sanatorium that were investigated, it was found that all but three of the cases had been diagnosed as cancer, not by independent physicians, but by the Nichols concern itself. In the three patients whose cases were diagnosed as cancer by physicians, no microscopic examination had been made. Many persons, especially those past middle age, who develop benign growths, assume that such growths are cancer and on their own responsibility go to these cancer-cure institutions that advertise that they do not use the knife. There the patient is told that the condition is cancerous; the growth is eaten out with caustics, the wound heals, and the patient goes back to his home a living advertisement for the "cure" of a "cancer" that never existed. (Jour. A.M.A., December 2, 1933, p. 1817).

Hippuran. — The Council on Pharmacy and Chemistry reports that Hippuran is a product of the Mallinckrodt Chemical Works, proposed by Swick for intravenous and for oral urography. Its chemical constitution is stated to be sodium ortho-iodo-hippurate. Soduim ortho-iodo-hippurate contains 38.8 per cent of iodine; it is said to be soluble in less than its own weight of water and to be stable in aqueous solution. It was chosen as a promising agent for visualizing the urinary tract, in view of the fact that hippuric acid normally occurs in the urine following the ingestion of benzoic acid, representing a conjugation of benzoic acid with glycerine. Usually from 10 to 15 Gm. has been administered by vein in 40 per cent aqueous solution over a period of five minutes. No reactions have been noted except a sensation of generalized warmth, such as has been reported with other products used for intravenous pyelography. With a dose of 30 Gm., occasional vomiting has occurred. By the oral route, diagnostic pictures are reported to have been obtained 90 and 135 minutes after

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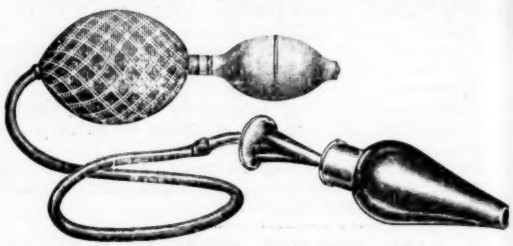

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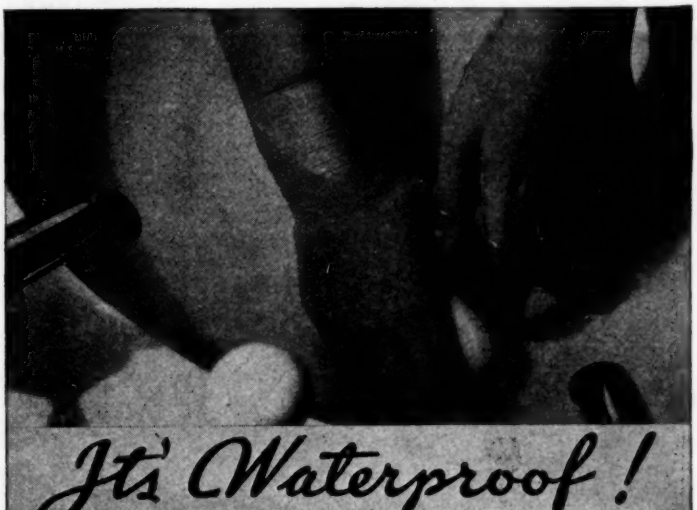
administration, in seven of fourteen cases. As the product has not yet been sufficiently widely employed adequately to determine its value, the Council has voted to defer further consideration of Hippuran until more evidence has accumulated with respect to its clinical usefulness, at which time the product will be examined by the A.M.A. Chemical Laboratory. (Jour. A.M.A., December 9, 1933, p. 1879).

Another Hay Fever Treatment—The Leach "New Filtration Method" in Hay Fever.—The "New Filtration Method" in the treatment of hay fever and allied conditions, said to have been originated by a Dr. Edwin S. Leach of Junction City, Kan., is discussed by the Bureau of Investigation of the American Medical Association. The "treatment" which constitutes what Dr. Leach calls his Filtration Method is essentially that of first swabbing the nasal tissues with a 2 per cent solution of cocaine and then the application of "Rhino-Form Single Strength." The nose and throat are then sprayed with an oil spray. After from one to three days treatment of this kind, "Rhino-Form Double Strength" is used. If this brings about a "profuse bloody discharge," this is said to indicate a mere "sloughing away of all superfluous tissue and is in no way indicating harm being done to the membranes." In some of his mimeographed material Dr. Leach has vaguely described "Rhino-Forms" as a "silver solution obtained by treating silver nitrate with an alkaline proteid." Dr. Leach was written to by the A.M.A. Chemical Laboratory, inquiring whether Rhino-Form was or was not a secret formula, and asking, if it were not, whether Dr. Leach cared to furnish an accurate definition of its composition, stating the amount of silver, ionic and non-ionic, as well as the amount of silver protein. No information was furnished. The A.M.A. Chemical Laboratory analyzed Rhino-Form (Double Strength) and concluded that it consists essentially of a "neutral" solution of silver nitrate of approximately 7 per cent strength and a small amount of a silver-bearing solid, possibly a silver protein compound and possibly some silver oxide; according to the label, the solid is not for therapeutic purposes. (Jour. A.M.A., December 9, 1933, p. 1897).

Contamination of Fruits and Vegetables with Toxic Insecticide Spray Material.—The Committee on Foods reports that distributors of fruits nd vegetables that may bear toxic material are obliated to remove such poisonous contaminations before they enter commerce for retailing to the public, or to warn food manufacturers of the possible presence of the spray residue. Food manufacturers using fruits and vegetables should take proper precautions either to assure the absence of toxic spray contaminations or their removal before the products are prepared or packed for consumption. Distributors of fresh fruits and vegetables and manufacturers of foods containing these products bear a serious responsibility to the public that their products as presented for consumption are entirely wholesome; carelessness or disregard of this public health responsibility is criminal. (Jour. A.M.A., October 21, 1933, p. 1316).

Lash-Lure.—There have been sixteen cases of severe untoward effects reported following the use of a single product called "Lash-Lure." This preparation is an aniline dy having for its base probably either paraphenylenediamine or paratoluylenediamine or some closely related substance. Every physician, and practically every responsible beauty parlor, knows the risk that is run in the application of dyes

. . . and costs no more than white adhesive plaster



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of the aniline type to the hair of the scalp. It has long been good beauty parlor practice to insist that persons who are to be subjected to an aniline hair dye should be tested for sensitivity to that product. Because of the irritating effects of such dyes, there is no justification for the use of so dangerous a substance around the delicate tissues of the eye. Cosmetics are under no national control. The Lash-Lure tragedies emphasize the need of some sort of nation al control over the sale of cosmetics. (Jour. A.M.A., November 11, 1933, p. 1566).

Vannay.—One of the latest stars in the firmament of obsesity-cure quackery is a product called "Vannay." It is put on the market by Bio Medico, Inc., of New York City. Bio Medico is a subsidiary of McCoy's Laboratories, which puts out the so-called McCoy's Cod Liver Oil Tablets. In addition, to Vannay, the obesity cure, Bio Medico, Inc., also puts out a laxative, "By-Kem." There seems to be a remarkable similarityy between Vannay and By-Kem if one is to judge by the advertising material. The manufacturers state that the principal element in Vannay is taurolactic acid. They also speak ambiguously of sodium taurolactate, and while the advertising matter does not acutally declare that sodium taurolactate is the essential ingredient in Vannay, a representative of the Vannay concern is reported to have stated that it is. According to the advertising circular, there is in addition, "an infinitesimal amount of copper," together with secretine and a "blood serum lipase." There is nothing in the alleged composition of this "patent medicine" to produce a reduction in weight except those elements that stimulate peristalsis. The introduction of secretine into the formula indicates that the "group of brilliant doctors of science and medicine" who are alleged to have developed Vannay are not sufficiently brilliant to have learned that secretine, whe ntaken by mouth, has no activity. The facts of the matter are, whatever reduction in weight may follow the use of Vannay is due to one or both of two factors: First, the laxative action ("increase the dose until your bowels move twice a day with a clocklike regularity") and, second, the requirement that the victim, in taking it, should diet. It hardly seems to have been necessary to call upon "a group of brilliant doctors of science and medicine" to establish such an obvious triusm. (Jour. A.M.A. November 18, 1933, p. 1658).

Vitamin C Therapy.—In the majority of cases, guinea-pigs maintained on a diet deficient in vitamin C will develop ulcerative lesions of the intestine, if fed daily doses of tuberculous sputum. If this deficiency diet is supplemented by an adequate amount of tomato juice (vitamin C), however, the animals almost invariably remain free from intestinal tuberculosis. Since the guinea-pig and man are apparently identical in their vitamin C requirements, McConkey and Smith of the New York State Hospital for Incipient Pulmonary Tuberculosis conclude that tomato juice therapy has a verifiable rationale in certains forms of clinical tuberculosis. (Jour. A.M.A., November 25, 1933, p. 1731).

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